

COLLABORATION QUALITY

Edition 2.5

MERANT® TRACKER™ USER'S GUIDE

FROM THE MAKERS OF PVCS®

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Welcome to Tracker

Thank you for choosing Merant Tracker™, a powerful and versatile issue management system that will revolutionize the way you develop software. Tracker helps you organize, manage, and protect your software development projects on every level—from storing and tracking changes to individual files, to managing and monitoring an entire development cycle.

Purpose of this manual

This manual shows you how to start working with Tracker user functions, explains Tracker and Notify concepts, and provides opportunity to practice basic tasks.

Edition status

This is Edition 2.5 of the *Tracker User's Guide*. The information in this edition applies to *Release 8.0.0.0 of Tracker* or later. This edition supersedes earlier editions of this manual.

The Merant Professional Product Suite

Merant Professional products automate software quality

Tracker is one of many products available in the Professional series of products. The Professional product suite automates software quality by providing tools to support:

- Software Configuration Management
- Issue Management
- Content Management
- Process Automation

Software Configuration Management

Software configuration management (SCM) is the process of organizing and managing changes to the components of your software development efforts. Effective SCM helps members of a development team retrieve and build any version of an application in a consistent and repeatable manner. Tracker, by providing issue management capabilities, is just one of several Merant Professional tools that enable you to practice effective SCM. Merant's complete line of SCM tools includes the following:

- **Version Manager™:** Enables teams of any size to coordinate concurrent development, while controlling changes in multiple revisions.
- **The Version Manager web client:** Provides tighter security, better performance, and remote access to Version Manager archives and projects through a secure browser-based client interface.
- **Configuration Builder™:** Automates and standardizes the build process.
- **Tracker™:** Captures, manages, and communicates feature requests and software defects.
- **The Tracker web client:** Is a secure browser based client interface that provides remote access to Tracker issues and projects.
- **Merant Professional:** Forms the core of effective team development by combining Version Manager, Tracker, and Configuration Builder into one product suite.
- **Merant Developer's Toolkit:** Provides an application programming interface (API) to Version Manager and Configuration Builder functions.
- **Merant Dimensions™:** Defines life cycles and manages development processes to accelerate delivery of higher quality software.

- **Merant Collage™:** Provides an “out-of-the-box” infrastructure for creating and managing enterprise web sites and e-business applications, including critical run-time features such as personalization.
- **Merant Build™:** Integrates the Openmake build management system into Version Manager providing control for your build process flexible enough to build for different groups, release versions, and lifecycle stages.
- **Merant Mover™:** Automates the retrieval and deployment of files and folders across an entire network by extracting files from Version Manager or Dimensions projects and deploying them to any mixture of servers.
- **Merant Meritage™:** Extends Version Manager features into Microsoft Office applications using the WebDAV server to promote a collaborative working environment.
- **Merant Modello™:** Is a complete documentation framework for software project management, development, and quality that will help you jump-start the creation of documented technical processes tailored specifically to your organization’s needs. Modello is geared to help you implement industry standards and sound, repeatable processes throughout your organization.

Issue Management

Issue management is the process of capturing, managing, and communicating changes and requests throughout a development lifecycle. By implementing a process of issue management, you can ensure that issues such as feature requests or defect reports are tracked and not lost. The tools to implement a successful issue management process are provided by Tracker and Dimensions.

Content Management

Content Management is the process of automating the development and deployment of web-site assets. By managing web content, you can ensure that all assets are protected and versioned, automate the deployment of assets to your web servers, and manage the contribution of content with fully integrated workflow. The tools to manage your web content are provided by Merant Collage.

Process Automation

Process automation is the use of tools and procedures to identify, manage, and control software and software-related components as they are developed and changed. Using a common software process, process automation typically incorporates version control, merging, parallel development, defect and change control, life cycle management tools, and process tools. The result is a controlled and managed environment for software development using process-driven version management. The tools to implement effective process automation are provided by Dimensions.

Ways to Work with Tracker

Your Tracker installation can consist of any combination of Tracker and Notify components, depending on the needs of your environment. In addition, you can integrate Tracker with other Merant Professional products, such as Version Manager or other version control IDEs using TrackerLink.

Tracker includes the following:

- Tracker Graphical User Interface

- Tracker Administrator
- Tracker Web Client Interface
- Notify Graphical User Interface
- TrackerLink

Tracker Graphical User Interface

The graphical user interface (GUI) offers access to all the Tracker User features.

Tracker Administrator

The Tracker Administrator is an application that allows Tracker Administrators to manage Tracker functions like creating projects, users, and user groups, managing logins and servers, and maintaining the data contained in Tracker. For more information about Tracker Administrator, refer to the *Tracker Administrator's Guide*.

Tracker Web Client Interface

The Tracker web client interface is an optional web browser-based component of Tracker that allows you to access Tracker projects via the Internet or an intranet using Tracker Server. The Tracker web client is appropriate for environments where users need to access projects from remote or mobile locations and for any environment that benefits from a client/server architecture.

The Tracker web client provides a subset of Tracker functionality designed for users who do not need access to administrative features. Tracker requires that you create and configure projects using the Tracker Administrator GUI before you can connect users to those projects with the web browser interface. In

addition to the information in this guide, refer to the Tracker online help for the web client.

Notify Graphical User Interface

Notify works with Tracker software. It is an optional component that can be installed when you install Tracker. The Notify Service Manager allows access to the features of Notify. For more information see the Notify chapter in the *Tracker Administrator's Guide*.

TrackerLink

TrackerLink provides access to Tracker features from within your integrated development environment.

Guide to Tracker Documentation

The following sections provide basic information about Merant documentation.

Tracker Documentation Suite

The Tracker documentation set includes the following online manuals.

This document...	Explains how to...
<i>Tracker Installation Guide</i>	Install and configure Tracker and install Notify. Activate TrackerLink.

This document...	Explains how to...
<i>Tracker User's Guide</i>	Perform daily tasks with Tracker, such as submitting and updating issues and managing queries. Use TrackerLink to work from within your IDE.
<i>Tracker Administrator's Guide</i>	Prepare a database server for use with Tracker; how to create and manage Tracker projects.
<i>Tracker Toolkit Reference Guide</i>	Use the Tracker Toolkit (TTK) to incorporate Tracker functionality into custom applications. Also, contains a complete Tracker Toolkit function reference.

Using the Online Manuals

The online manuals included on the Merant Professional Series CD-ROM are copies of the printed manuals. You can order printed copies of most manuals from your Merant sales representative or by completing the documentation form found in the section, "[Ordering Hard-Copy Manuals](#)" on page 18. These online manuals were created using Adobe's Portable Document Format (PDF). To view these PDF manuals, use Adobe Acrobat Reader, which is provided on your Merant Professional Series CD-ROM.

To access the Tracker online manuals from the Windows desktop, select Start | Programs | Merant | Merant Tracker | Tracker Online Manuals.

This section highlights the main features of the online manuals. For more information on using the online manuals, see the Acrobat Reader Online Guide.

- **Links.** Cross-reference links within an online manual enable you to jump to other sections within the manual and to other manuals. These links are displayed in blue, and allow you to jump to a cross reference with a single click of the mouse.
- **Full-text searches.** The search index enables you to perform a full-text Boolean (AND, OR, and NOT operands) search across the online documentation set.

NOTE To take advantage of the search features, you must have Acrobat Reader with Search, which is provided on your Merant Professional Series CD-ROM. You can also install it from Adobe's web site.

The search feature allows the following search options:

- **Word stemming.** The Word Stemming option enables you to search for words that share the same stem (for example, searching for config would result in configure, configuration, CONFIG.SYS).
- **Thesaurus.** The Thesaurus option enables you to search for words that have a similar meaning to the search word.
- **Proximity.** The Proximity option is useful for locating topics of interest. During a simple AND search, it limits the search result to the instance in which the search criteria are found within the shortest distance of each other (and no more than three pages apart).

For example, if you wanted to find out about project configuration and how it relates to archives, instead of finding every instance of "project configuration" and "archives" separately, the proximity feature searches for a spot in the document where occurrences of "project configuration" and "archives" are closest to each other.

- **Bookmarks.** All of the online manuals contain predefined bookmarks that make it easy for you to quickly jump to a

specific topic. By default, the bookmarks are displayed to the left of each online manual.

- **Printing.** While viewing a manual, you have the ability to print the current page, a range of pages, or an entire manual. You also have the option of saving the print job as a PostScript file.

Accessing Online Help

Online help is available for the Tracker Administrator, Notify, and in Tracker web and desktop clients.

- **Tracker desktop client and Tracker Administrator:** Select Help | Contents to access online help, or click Help from a dialog box. The help system provides procedural and conceptual information about using the Tracker or Tracker Administrator desktop client.
- **Tracker web client:** On the Help tab, select Help Topics to access online help, or click Help from a dialog box or page to access context-sensitive online help. The help system provides procedural and conceptual information about using Tracker.

Typographical Conventions

The following typographical conventions are used in the online manuals and online help. These typographical conventions are used to assist you when you use the documentation; they are not meant to contradict or change any standard use of

typographical conventions in the various product components or the host operating system.

Convention	Explanation
<i>italics</i>	Introduces new terms that you may not be familiar with and occasionally indicates emphasis.
bold	Emphasizes important information and field names.
UPPERCASE	Indicates keys or key combinations that you can use. For example, press the ENTER key.
monospace	Indicates syntax examples, values that you specify, or results that you receive.
<i>monospaced italics</i>	Indicates names that are placeholders for values you specify; for example, <i>filename</i> .
monospace bold	Indicates the results of an executed command.
vertical rule	Separates menus and their associated commands. For example, select File Copy means to select Copy from the File menu. Also, indicates mutually exclusive choices in a command syntax line.
brackets []	Indicates optional items. For example, in the following statement: <code>SELECT [DISTINCT],</code> DISTINCT is an optional keyword.
...	Indicates command arguments that can have more than one value.

Ordering Hard-Copy Manuals

As part of your Tracker license agreement, you may print and distribute as many copies of the Tracker and Notify manuals as needed.

If you do not want to print each of these online manuals, you can order hard-copy versions from Merant. To order, please contact your sales representative for assistance.

Contacting Technical Support

Merant provides technical support for all registered users of this product, including limited installation support for the first 30 days. If you need support after that time, contact us using one of the methods below or purchase further support by enrolling in the SupportNet program. For more information about SupportNet, contact your sales representative.

Technical support is available 24 hours a day, 7 days a week, with language-specific support available during local business hours. For all other hours, technical support is provided in English.

WWW

SupportNet Customers can report problems and ask questions on the SupportNet web page:

<http://support.merant.com/>

To submit an issue, click the **Report a Problem** link and follow the instructions.

The SupportNet Web site contains up-to-date technical support information, which you can access from the SupportNet web page. Our SupportNet Community shares information via the Web, automatic e-mail notification, newsgroups, and regional user groups.

SupportNet Online is our global service network that provides access to valuable tools and information for an online community for users. SupportNet Online also includes a KnowledgeBase, which contains how-to information and allows you to search on keywords for technical bulletins. You can also download fix releases for your Merant Professional products.

E-mail

support@merant.com

Telephone	Asia Pacific	+61 3 9522 4455
	Australia	1800 335 664
	Österreich	0800 292 783
	Belgique (Langue Française)	0800 774 79
	France	0800 915 607
	Deutschland	0800 1822 496
	Hong Kong	800 900 521
	Italia	800 791 179
	Japan	0120 749090 or 00531 790014 (in Japan only)
	Nederland	0800 022 1609
	New Zealand	0800 444 515
	Singapore	800 4481 230
	South Africa	0800 99 1115
	South Korea (Korean)	003 0844 0044
	España	900 968 929
	Suisse (Langue Française)	0800 836 736
	Schweiz (Deutschsprachig)	0800 836 737
	United Kingdom and Ireland	0808 100 2672
	USA, Canada, and Mexico	1 800 443 1601

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Mail 3445 NW 211th Terrace, Hillsboro, OR 97124 USA

When you contact us, include the following information:

- The **product serial number** located on the Product Registration Information card in the box. The number will be checked to verify your eligibility to receive support. If you do not have a current SupportNet contract, we will ask that you speak with a sales representative.
- Your **name and organization**. On a first-time call, you may be asked for full customer information including location and contact details.
- The **version and build number** of the Merant Professional product you are using.
- The type and version of the **operating system** you are using.
- Any **third-party software and other environmental information** necessary to understand the problem.

- A **brief description of the problem and the steps necessary to re-create** it. Specific error messages are needed. Depending on the complexity of the problem, you may be asked to submit a re-creatable example demonstrating the problem.
- An assessment of the **severity level** of the reported problem.

Submitting Enhancement Requests

If you would like to see an enhancement made to one of our products, you can submit your request to our Product Management Team via WishLink™.

WishLink provides SupportNet customers the ability to submit product enhancement requests via the Internet at <http://support.merant.com>. Requests will be evaluated and passed along to the appropriate development team for consideration.

Your feedback will enable us to continue making products and services that you want and need.

1 Introducing Tracker

In this Chapter

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About the Tracker Environment	30

What Does Tracker Do for You?

Welcome to Merant Tracker™, the issue tracking tool for the Windows desktop, Internet, and intranet. In these three environments, Tracker provides tools to:

- Collect your issues in a database.
- Track changes to those issues as they move towards a resolved state.
- Find and sort sets of issues when you want to review, compare or relate them.
- Report statistics on your issues.
- Notify you and other users in your project of changes to issues as they occur.
- Escalate issues that require immediate attention.

This chapter discusses what Tracker is and does and how you can get the most from this software tool.

Issue Management the Easy Way

Tracker helps application developers, quality assurance engineers, technical support personnel and others manage the complicated communication tasks common in software or asset development and other complex projects.

What Is “Issue Management”?

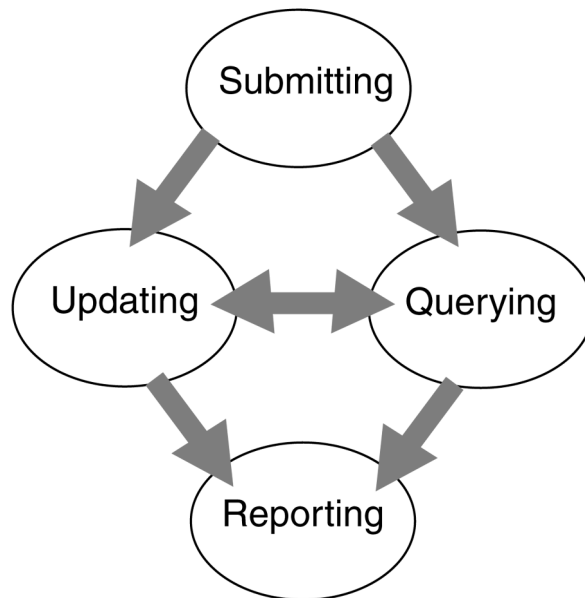
Issue management is the process of capturing, managing, and communicating changes and requests throughout a development life cycle. By implementing a process of issue management, you can ensure that issues such as feature requests or defect reports

are tracked and not lost. The tools to implement a successful issue management process are provided by Tracker.

What Distinguishes Tracker?

Tracker is extremely flexible and scalable across a variety of implementations and organization sizes. While scaling from a single user to several hundred users, Tracker also provides a robust feature set and a variety of ways of accessing data for both co-located and distributed work teams. Ease of use is a primary concern of the Tracker development team, who use this tool to manage their own projects.

Tracker's Primary Features



Tracker provides a centralized mechanism for storing issues and tracking them as they move through their lifecycle. Users submit and update issues using graphical forms that can be customized by the Tracker Administrator to include custom fields and

terminology unique to your working environment. Integrated notification of changes to issues via Tracker or your e-mail system lets you quickly communicate ownership and status changes to project team members throughout the project lifecycle.

Tracker also provides:

- Query and reporting facilities to help you prioritize workload, gauge end-user demands, show progress, and identify threats to your quality and schedule goals.
- An ability to relate issues within and across projects to communicate issue dependencies.
- Predefined reports and queries and features to help you create your own reports and queries using an easy-to-use point-and-click interface.
- Personalized HTML-based style sheets let you format the appearance of the screen and printed output.
- A facility to integrate change requests with the revision information stored in Version Manager and Microsoft® Visual SourceSafe® archives and to perform basic source control operations on those archives.
- Cloning similar issues to cut down on the overhead of submitting the same information more than once.
- A web client to access your change requests (an ideal solution for remote workers).
- Access to issue management features such as submit, update, and module association from within an Integrated Development Environment via TrackerLink.

Not all users will use all features. Managers may primarily execute queries and reports. Individual contributors, such as programmers and quality assurance staff, may primarily submit and update issues.

Information Provided in This Guide

The *Tracker User's Guide* and *Help for Tracker* are designed to make it easier to find the information that you are looking for. You will find conceptual overview information in the Guide, such as the following:

- What are the primary features in Tracker?
- What is the difference between the Tracker desktop client, the Tracker web client, and TrackerLink?
- How does Metrics work with Tracker?
- Why use queries rather than reports in certain situations?
- How to integrate Tracker with Version Manager and Visual SourceSafe source control

When you click a Help button in a dialog box in Tracker, TrackerLink, or the Tracker web client, or Metrics, you will see a description of the purpose of the dialog box and descriptions of controls, or buttons and fields, in the dialog box. You can also access a list of Frequently Asked Questions from the Contents tab under *Getting Started*.

keyword:
creating style
sheets

Throughout this guide you will notice notations such as that shown at left, in the margin.

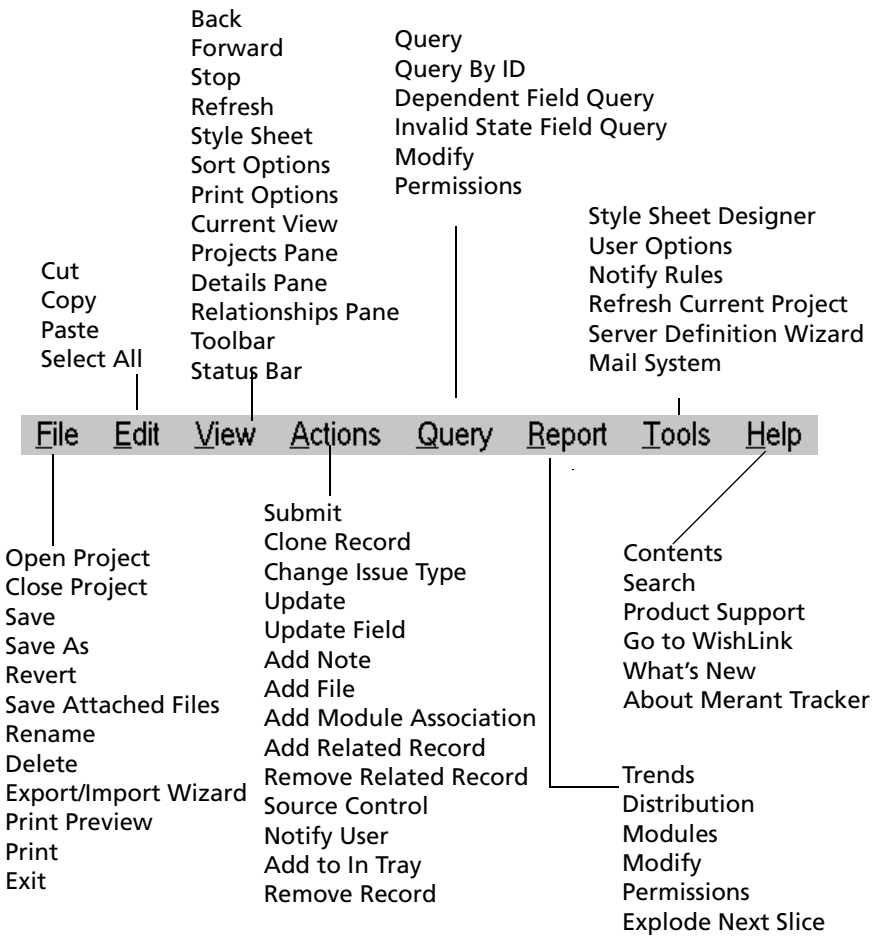
Use the keyword specified to search for related help topics on the Index tab in Tracker's online help system.

About the Tracker Environment

The Tracker for Windows environment contains standard Windows navigational devices. This section describes the toolbar and menu bar.

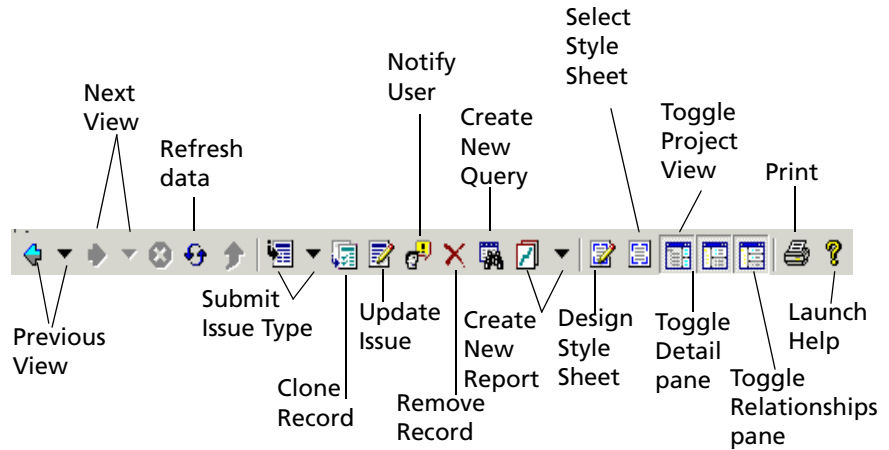
The Menu Bar

The menu bar is organized to follow the Tracker workflow. As you enter and manage an issue, you work from left to right.



The Toolbar

The toolbar is located under the menu bar. It provides shortcuts to frequently used options, as shown below.



2 Desktop, Browser, or IDE

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Three Ways of Looking at Your Data

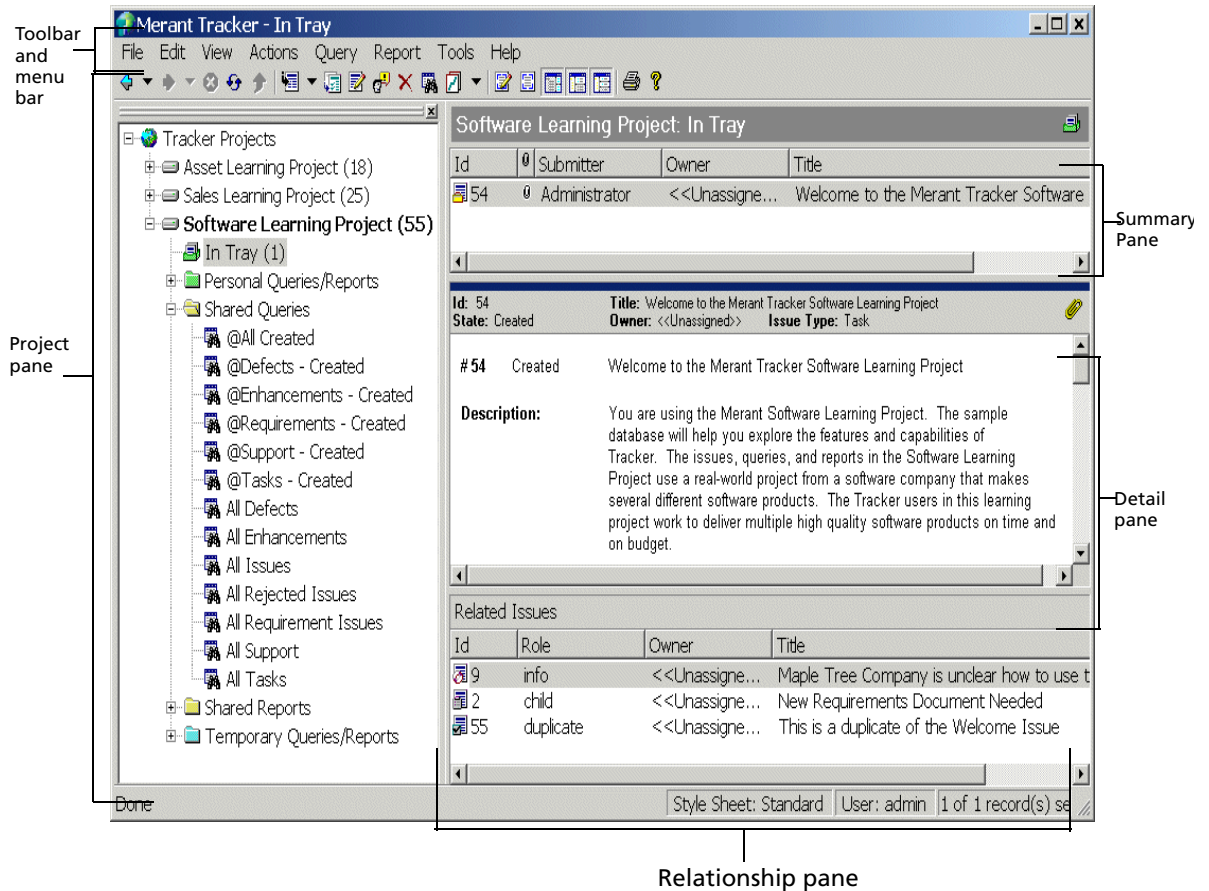
Tracker provides a set of interfaces, the Tracker desktop client, TrackerLink, and the Tracker web client, that all provide access to the issue database no matter where the user is located—onsite using the desktop, offsite dialed up via a modem, or in an Integrated Development Environment (IDE) such as Microsoft Visual Studio. In addition, a Toolkit is provided for accessing Tracker data directly. See the *Tracker Toolkit Guide* for more information about this interface.

Tracker desktop client contains all of Tracker's functionality. TrackerLink and the Tracker web client are subsets of that functionality. In order to use Tracker and TrackerLink (except anonymously), users must have a Tracker login.

The following few pages show what the primary user interface looks like for each of these interfaces to the Tracker database and compares them.

Tracker for Windows

The following graphic shows the components of Tracker for Windows.



For more information about navigating Tracker for Windows, see ["About the Tracker Environment" on page 30.](#)

Inherited Permissions and Security

The Tracker desktop is the primary Tracker interface to the database. It contains the widest range of features for entering, updating, querying, and reporting on the data.

The web client and TrackerLink interfaces are subsets of this interface, designed to put Tracker functionality when and where you need it.

Permissions for Tracker are set by the Tracker Administrator. Specific permissions are required for users to edit fields on forms; use individual features, such as creating or modifying style sheets, reports, or queries; and modify notify options. Permissions are assigned to user groups. Individual users gain permissions when they are made members of groups with those permissions.

In addition to explicit permissions set by the Tracker Administrator, there are levels of security related to queries, reports, and style sheets.

Queries and reports adhere to the following kind of security with the appropriate permissions:

- **Shared** queries and reports can be seen, used, and modified by all users of a given project.
- **Personal** queries and reports can be seen, used, and modified only by the owner.

Style sheets make use of a similar kind of security:

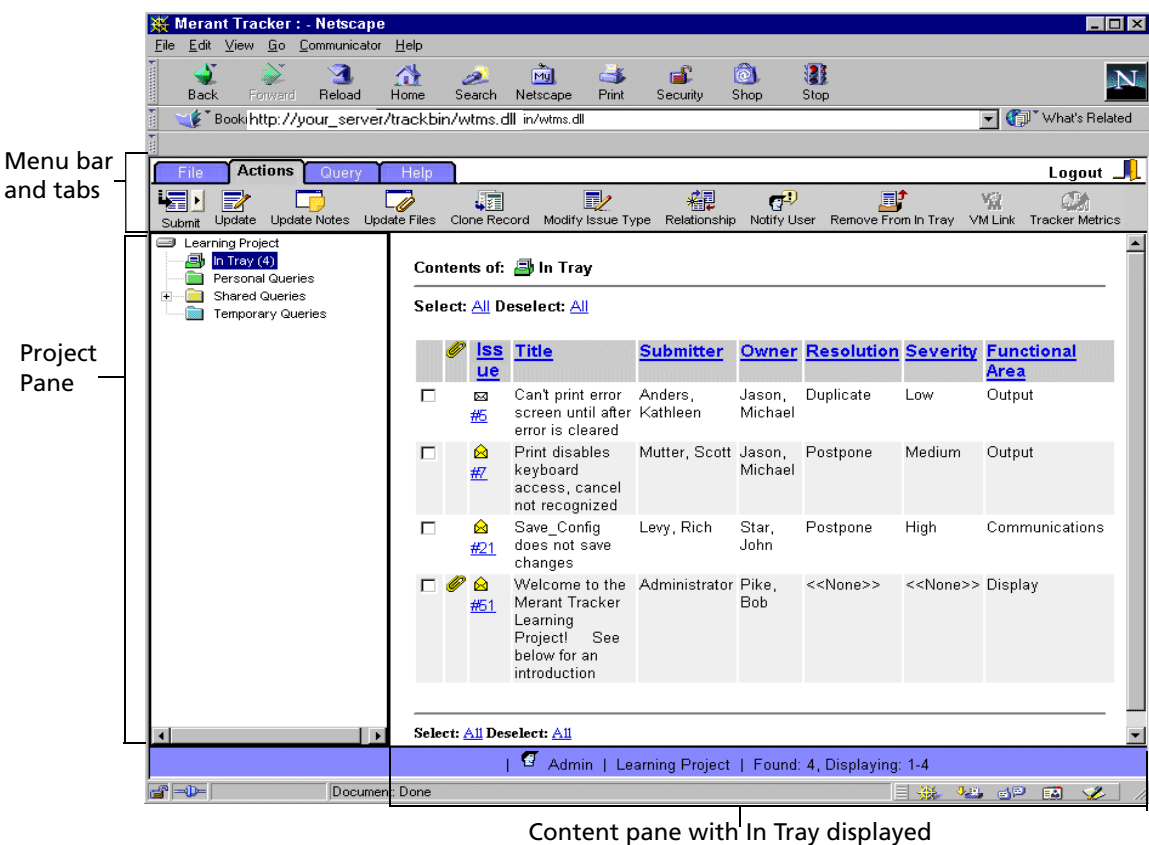
- **Personal** style sheets can only be modified by the owner, or creator, of the style sheet. These style sheets are stored on the creator's computer and can be accessed by anyone using that computer. They are not available to users not using that computer.
- **Project** style sheets can be modified by any user with access to a given project.

- **System** style sheets can be modified by any user with access to the Tracker system.

All of these kinds of permissions and access configurations can be set in Tracker for Windows. The Tracker web client and TrackerLink inherit all rights through the configuration of these features in Tracker, with the exception of access to queries, which can be modified in the Tracker web client.

Tracker Web Client

The following graphic shows the Tracker web client desktop. This desktop is visually similar to the Version Manager web client desktop and contains much of the functionality available in Tracker.



Tracker on the web is Tracker’s “light client”. It includes much, though not all, of the functionality in Tracker. The Tracker web client has an online help system, accessible from the Help tab (the far righthand tab shown in the graphic above).

What the Web Client Does for You

The Tracker web component allows users to perform the following tasks using a web browser:

- Submit new records
- Update existing records
- Clone existing records
- Relate issues
- Notify users of changes
- Add notes and attach files when submitting and updating issues
- View the In Tray
- Run custom and predefined queries
- View record details
- Change their passwords
- Create custom queries
- Select columns to appear in the detail pane
- Choose a style sheet
- Set print options and print preview

Users of the web browser interface do not need to install Tracker or the DBMS client software on their workstation. This makes the Tracker web component ideal for remote and mobile users as well as for members of geographically dispersed teams.

One of the key benefits of using the Tracker web interface is that it allows users in UNIX environments to access Tracker's key issue management features.

Once it is installed and set up for use with Tracker projects, you can display the web component using the URL distributed by your Tracker Administrator.

Using the Tracker Web Client

The Tracker web client is as easy to use as your browser. All documentation for Tracker is available online from the help system. For more information on using Tracker, such as how to use its submit, update, and querying features, access the Tracker help system from the Help tab, as shown in the illustration on [page 38](#).

TrackerLink

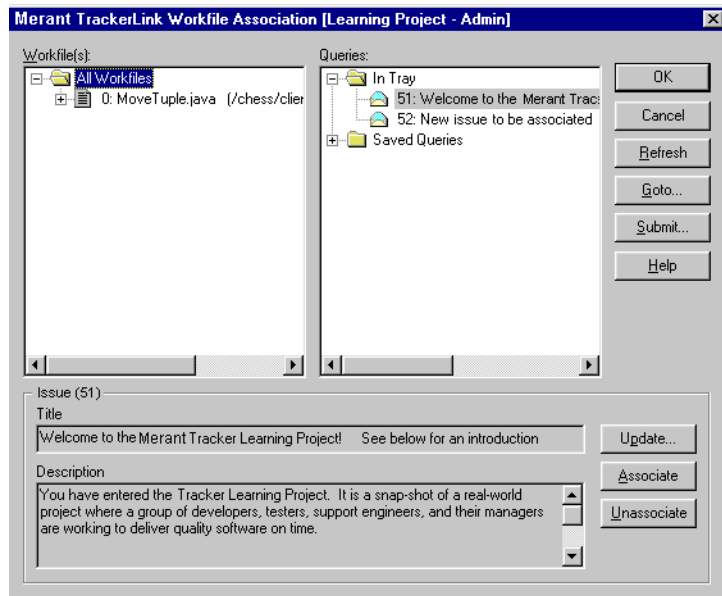
TrackerLink™ is a program within Tracker and is always available, given certain configuration requirements. (See [“Getting Started with TrackerLink” on page 49](#).)

Just as the issue is the focus of the interface in Tracker for Windows, in TrackerLink the user’s source file, or workfile, is the focus of the interface. TrackerLink is invoked from within an IDE or version management application. TrackerLink’s key value is that it eases the gathering of module association data (relationships between issues and workfiles), thereby facilitating impact analysis when an issue is reviewed for schedule impact or cost analysis.

keyword:
TrackerLink

In TrackerLink, the Merant TrackerLink Workfile Association dialog box is the user’s primary window into the Tracker

database. In the graphic below, the In Tray is located in the righthand pane, or Queries pane.



TrackerLink makes it possible for you to use Tracker from within:

- Version Manager desktop client
- Version Manager web client
- An Integrated Development Environment (IDE) such as Visual Basic, Visual C++, or Sybase PowerBuilder, in combination with a source code control package such as Version Manager or Microsoft SourceSafe

From any of these environments, you can do the following without invoking Tracker separately:

- View your In Tray
- Query the issues database
- Submit and update new issues
- Associate issues with the files you check in and check out

What TrackerLink Does for You

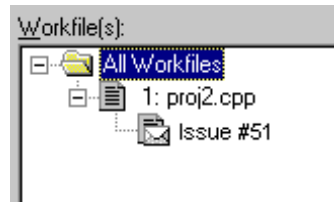
This section describes what TrackerLink does:

- Associates workfiles and issues
- Records the revision numbers assigned at check-in

Workfile/Issue Associations

In the Workfiles field in the Workfile Association dialog box you can:

- **Associate files and issues.** You can view issue IDs associated with a specific file. The numeral preceding each filename indicates the number of issues associated with the file.



You can associate one issue with several workfiles at the same time, but you cannot select a query and associate all of its matching issues with a workfile or workfiles at the same time. Issues must be selected individually.

If a file has no associations, the current workfile will still have a plus sign next to it, but will be labeled as having “(no associations)”.

- **Verify an association has occurred.** You can display a list of modules and any issues that have been associated with them.
- **Remove record/workfile associations.** Issue/workfile associations help you keep track of which files have been modified because of a given issue.

- **Submit or update a new issue.** Buttons are available from either the Merant TrackerLink Admin dialog box or the Merant TrackerLink Workfile Association dialog box to access the submit and update forms.

Complete and Partial Associations

Since an issue can be attached to a workfile either on check-in or checkout, TrackerLink uses the concept of “complete” associations; that is, a workfile that has been associated with an issue both on check-in and on checkout.

A partial association can occur when a workfile has been associated with an issue only on checkout. Associating an issue with a workfile on check-in always creates a complete association.

How Undo Checkout Affects Associations

When you undo the checkout of a workfile, you also undo any associations that were made while the file was checked out. Associations made to that workfile in previous checkouts are not affected.

Verifying Associations

To verify that an issue was associated with a workfile, use the Merant Verbose style sheet in the Tracker application. This will display the Modules heading, and any workfiles associated with that issue will be listed there. If you are using the Version Manager IDE client, the revision numbers of those workfiles will be displayed there as well.

Revision Numbers

TrackerLink can record the revision numbers of the workfiles that you associate issues with, but only if you are using:

- Version Manager and version 6.5 or higher of the Version Manager Development Interface, or
- TrackerLink with Version Manager desktop and web clients.

In the Workfiles pane, the issues associated with the workfile have revision numbers. This revision number information is

stored in the comment fields that appear when you request an archive, or history, report (or, in PowerBuilder, a Registration Report):

```
Rev 1.5
Locked by:      talala
Checked in:     Aug 24 1998 19:17:10
Last modified:  Aug 24 1998 19:16:58
Author id: talala    lines deleted/added/moved: 0/0/0
File corrected as per Dave's comments.
Resolution for 52: Disk activity seems to affect display of
Resolution for 53: Text in message box hard to read
```

TrackerLink's Unique Environment

TrackerLink varies slightly, depending on which version control software you are using—Version Manager or another vendor's product. How you access TrackerLink from an IDE depends on which IDE you are working in.

TrackerLink has its own online help system, as well, accessible from Help buttons within the dialog boxes. The following sections describe some of the ways in which TrackerLink varies from Tracker for Windows at the conceptual level.

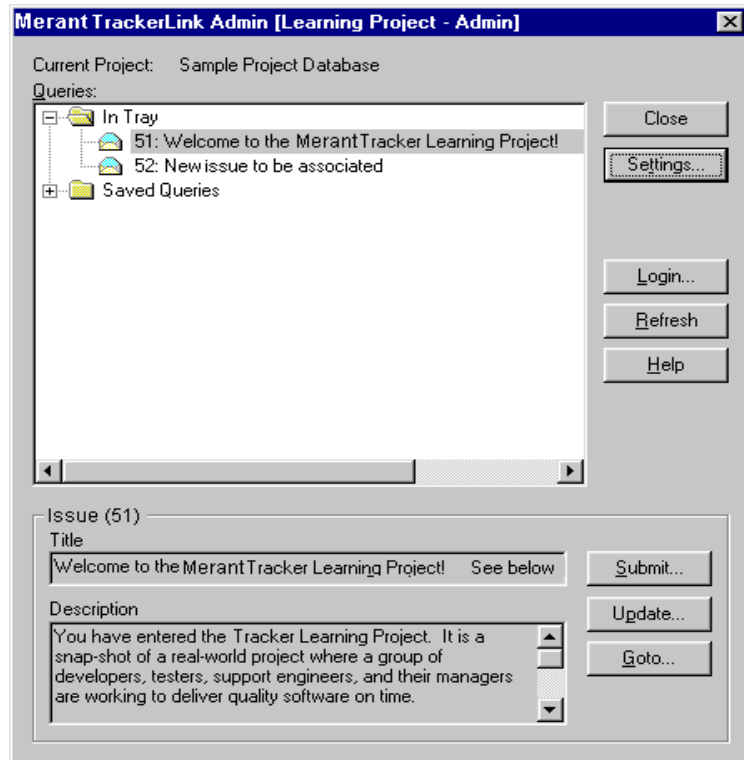
TrackerLink at a Glance

TrackerLink's dialog boxes are accessible from your IDE's menu system and, once TrackerLink is configured, the appropriate dialog boxes are displayed as you are checking source files in and out. To access the Merant TrackerLink Settings dialog box, you'll need to consult your IDE Administrator for instructions appropriate to your IDE.

TrackerLink Dialog Boxes for Version Manager

If you are using TrackerLink from within Version Manager, TrackerLink has three main dialog boxes:

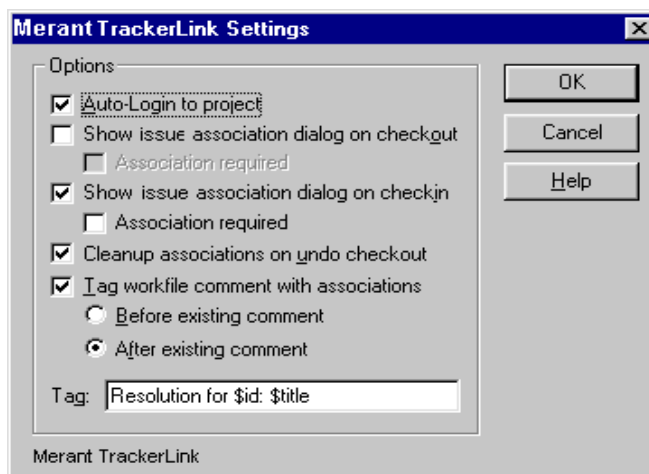
- Merant TrackerLink Admin Dialog Box



This dialog box allows TrackerLink users to administer their view of the Tracker database including:

- Viewing queries.
- Viewing the title and description of an issue.
- Displaying the Merant TrackerLink Settings dialog box.
- Logging in to another project.
- Submitting and updating issues.

■ Merant TrackerLink Settings Dialog Box

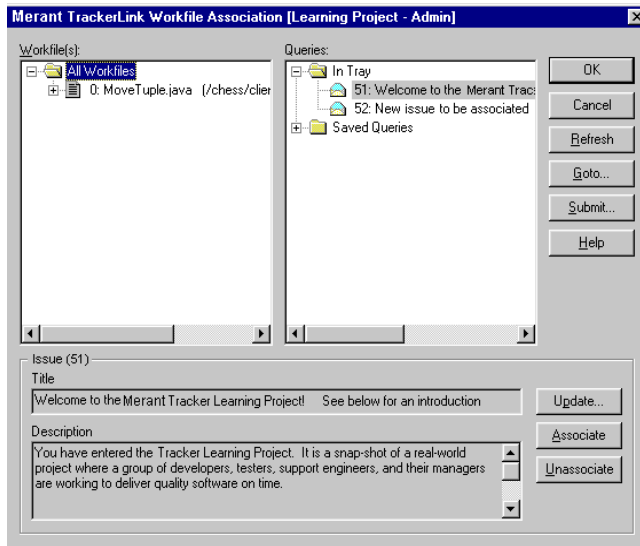


This dialog box allows you to choose the settings for TrackerLink. Access it by:

- choosing Run Merant TrackerLink from within your IDE
- choosing the Settings button on the Merant TrackerLink Admin dialog box.
- choosing Admin | TrackerLink in Version Manager GUI.

NOTE This option in Version Manager is only available if you have Superuser privileges. Contact your Administrator for assistance.

■ Merant TrackerLink Workfile Association Dialog Box



This dialog box allows you to associate issues with workfiles, or undo previous issue-Workfile associations. It appears automatically during a checkout or check-in when TrackerLink is active.

TrackerLink Dialog Boxes for SCC Providers

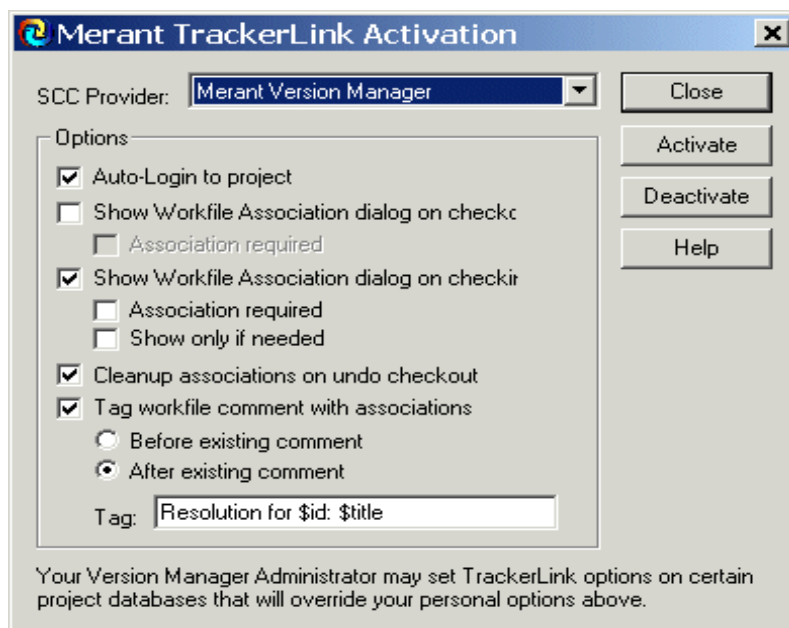
When used with an IDE and not the Version Manager version control package, TrackerLink has the following dialog boxes as shown above:

- Merant TrackerLink Admin Dialog Box
- Merant TrackerLink Settings Dialog Box

NOTE The fields and other controls in this dialog box are slightly different for an IDE than they are if you are using Version Manager.

- Merant TrackerLink Workfile Association Dialog Box

■ Merant TrackerLink Activation Dialog Box



This dialog box allows you to activate TrackerLink, set TrackerLink options, and choose from multiple source code control providers (if you have more than one). You can launch it by choosing Start | Programs | Merant | Merant Tracker | TrackerLink.

NOTE If you are using TrackerLink from within Version Manager (VM), know that VM does not read the SCC Provider selection in this dialog box. Additionally, there is no need to Activate or Deactivate TrackerLink if it is used within VM. TrackerLink is always activated if accessed from within VM.

How TrackerLink Works in an IDE

TrackerLink uses Microsoft's SCC interface, specifically, a registry key item, to install itself as the default Source Code Control provider. By installing this registry key, TrackerLink is able to watch the calls that the IDE makes to the source code control software and provide Tracker functionality whenever you check in or check out a file.

How TrackerLink Works with VM

If you have Version Manager installed, TrackerLink does not use the Microsoft SCC interface. Instead, TrackerLink and Version Manager have been modified to work together directly. Since the SCC provider is known to be Version Manager, some of the dialog boxes and dialog box fields are unnecessary and do not appear. These fields are identified in the Help system.

Getting Started with TrackerLink

Setup and Configuration

Before you launch TrackerLink, be sure you have installed and configured the following:

IDE users

- Your Integrated Development Environment (IDE)
- Version Manager or another source code control software package
- Version Manager IDE client. This is automatically installed if you are using Version Manager 6.6 or later.
- Tracker

Version Manager users

You should have the following software installed before you begin using TrackerLink:

- Version Manager 6.5 or later
- Tracker 6.0.20 or later

Version Manager web client users

You should have the following software installed before you begin using TrackerLink:

- Version Manager 7.5 or later
- Tracker 8.0 or later

keyword:
TrackerLink

In addition, you should have your Tracker projects and source code control projects set up before using TrackerLink. Essentially, you should be at the point where you can check in and check out files. Installation, activation, and deactivation are discussed below. The online Help provides specific configuration procedures.

**Installing
TrackerLink**

TrackerLink is an option during your installation of Tracker. Choosing the TrackerLink option enables, or activates, TrackerLink. You can go to Start | Programs | Merant | Merant Tracker | TrackerLink to display the Merant TrackerLink Activation dialog box.

NOTE With Version Manager, you do not have to perform any more steps to install TrackerLink. If you are using an IDE, you will need to activate TrackerLink.

**Setting Up
TrackerLink in
Version
Manager**

In Version Manager, the Administrator will need to set up TrackerLink in the Version Manager GUI. See the *Version Manager Administrator's Guide* for more information.

**Activating
TrackerLink**

Essentially, any change to Tracker, to the IDE, or to the SCC provider, requires that TrackerLink be reactivated. These changes may include:

- Installing new Source Code Control software (SCC provider)
- Installing a new Integrated Development Environment (IDE)
- Installing a new version of the Version Manager SCC Interface

Choose Start | Programs | Merant | Merant Tracker | TrackerLink to display the Merant TrackerLink Activation dialog box. When the Activation dialog box appears, click the Activate button. If you cannot remember if TrackerLink has been activated, it is fine to activate TrackerLink more than once.

**Deactivating
TrackerLink**

To deactivate TrackerLink, choose Start | Programs | Merant | Merant Tracker | TrackerLink. When the Activation dialog box appears, click the Deactivate button.



Sample Scenario

Using TrackerLink

Consider that:

Version Manager

You are a developer using Version Manager. From the Admin menu in Version Manager, you select the Tools | TrackerLink menu item, which displays the TrackerLink dialog box.

OR

IDE

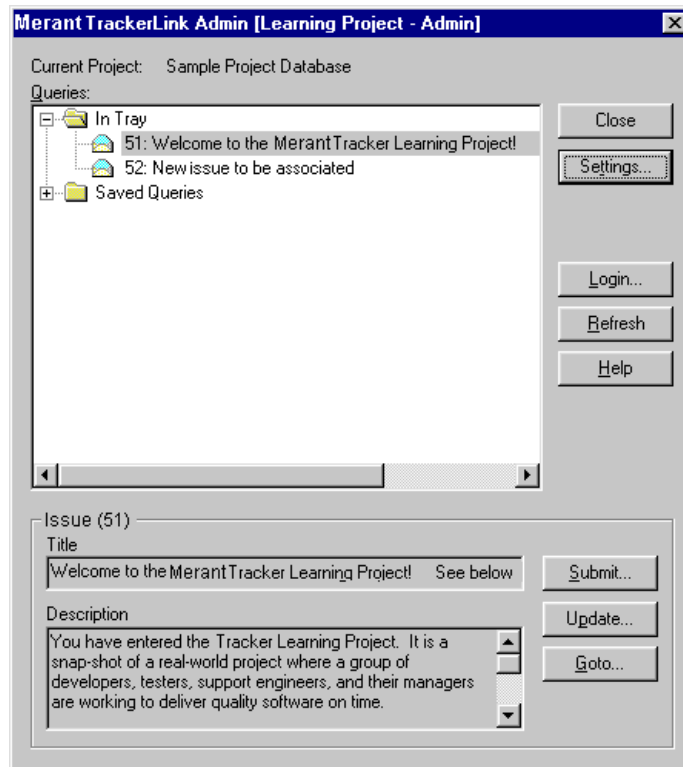
You are a developer using an integrated development environment (IDE) such as Microsoft Visual C++. You are also using a source code control provider (SCC provider) such as Version Manager, and you are also using Tracker. You have already:

- Installed your development environment
- Installed your source code control software
- Installed Tracker
- Set up your source code control projects
- Set up a working project in your IDE
- Activated TrackerLink, either at the end of the Tracker install process, or from the Activate button on the Merant TrackerLink Activation dialog box

Accessing TrackerLink within an IDE

After you open a workspace or project in the development environment, you check out a file to make some changes. From a menu in your development environment (the exact location varies with each IDE), you select the TrackerLink menu item, which displays the Merant TrackerLink Admin dialog box. The

Merant TrackerLink Admin dialog box shows you a list of the issues in your In Tray.



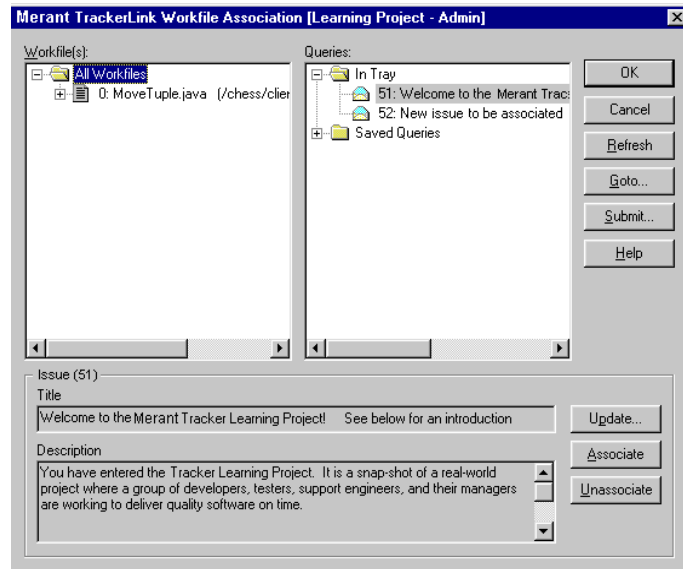
By selecting issues in the list, you can view each issue's title and description. If you wish to execute a query, expand the Saved Queries folder. The number and title of the issues matching each query are displayed in the subfolders under Saved Queries.

Once you have examined an issue in either the Merant TrackerLink Admin dialog box or the Merant TrackerLink Workfile Association dialog box, you can update the issue by choosing the Update button. This displays the familiar Merant Tracker Update dialog box, which shows you all of the fields for the issue, and allows you to read the notes and add notes of your own.

VM Users

Click the Submit button on the Check In File dialog box to submit a new issue from within Version Manager.

Although you can check your In Tray from the Merant TrackerLink Admin dialog box, you will probably spend most of your time in the Merant TrackerLink Workfile Association dialog box. The Merant TrackerLink Workfile Association dialog box appears when you click Associate Issues when you check in a file. (This dialog box can also be set to appear when you check out a file, but by default it appears only when you check in.)



The left pane of the dialog box, labeled Workfiles, shows the file or files that you are checking in or checking out. The right pane, labeled Queries, shows the issues that are in your Tracker Project and it also displays your In Tray. From this dialog box, you can check your In Tray, run queries, submit and update issues, and associate files with issues.

The Merant TrackerLink Workfile Association dialog box shows the workfiles you are checking in or out on the left, and the issues in your Tracker Project on the right.

If you change your mind about a particular issue association, double-click the issue number in the Workfiles pane, or, if the issue's title and ID are currently selected, choose the **Unassociate** button.

You can associate several files with one issue at the same time, but you cannot select one of the query names and associate.

3 Taking Off with Tracker

In this Chapter

Accessing Project Data	56
Navigating Multiple Projects	63
Refreshing Your View of the Database	65
Communicating Changes to Issues	66

Accessing Project Data

Logging in establishes your identity as a user—whether you are logging in as an individual contributor, or as one of many people sharing a group login (such as “QA” or “BetaTester”). Logging in also establishes a connection between Tracker and the database you use to store your project data.

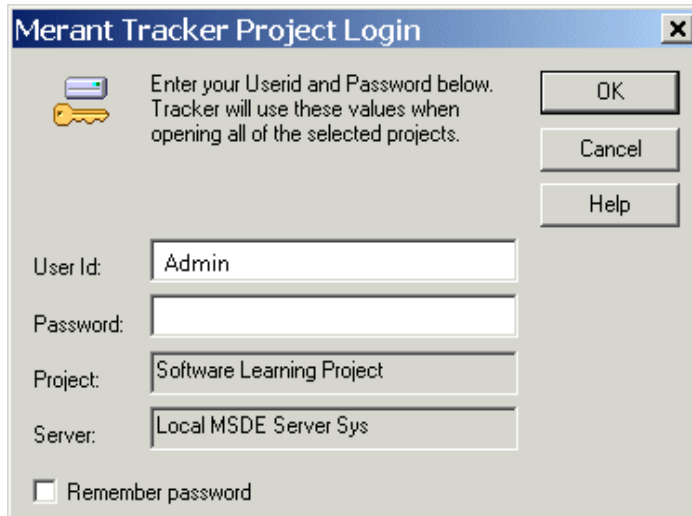
The following sections discuss:

- what the first-time user sees when logging in
- opening projects
- logging in after the first time
- logging in to multiple projects
- how to log in to projects from pre-7.0 versions of Tracker
- the Tracker Server Wizard

If you need more information about the project database used for your Tracker projects, see the *Tracker Administrator's Guide*.

Logging In for the First Time

By default, all new users are set up to log in to the Software Learning Project.



This is the dialog box displayed when you start Tracker for the first time after installation. Tracker has filled in your user ID as *Admin*, left the password blank, specified the Software Learning Project as the default project, and entered the name of the server created for you during the install.

The *Admin* user has unrestricted access to add, update, own, delete, and reopen closed records. This user also has full, project-level permissions. The *Admin* user cannot be renamed or deleted. Clicking OK brings you to the Tracker desktop.

Since Tracker uses a database to store its information, you could say that the database serves the information to Tracker whenever Tracker asks for it. The Server field in the Project Login dialog box specifies which server (actually, which server definition) Tracker should use for the given project. Just as an `http://` address tells a browser where to find a specific web page, the Server field tells Tracker where to find the information for a specific project.

For information on defining servers see [“The Server Wizard” on page 62](#).

If you are an experienced Tracker user, you might wish to skip ahead to [“Logging In to Your Project” on page 58](#); new Tracker users can read on about login concepts.

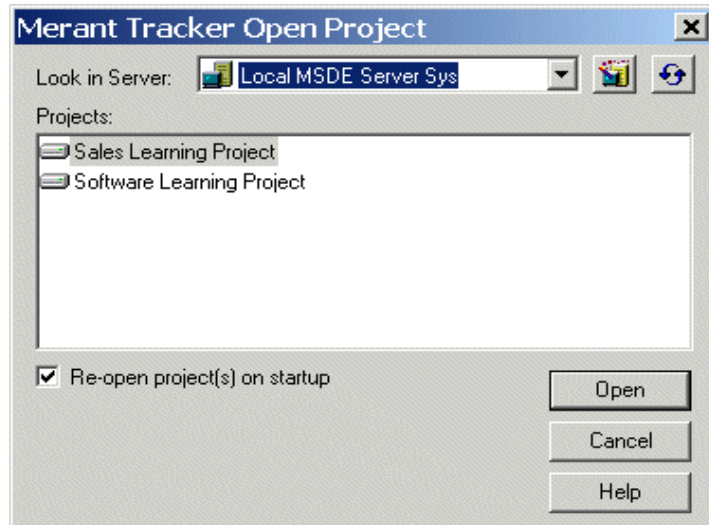
Logging In to a Learning Project

There are multiple Learning Projects that ship with Tracker: several designed for the Windows desktop interface and one designed for the web interface. These are all real-world examples of the defect tracking data generated during a software project. They are shipped with Tracker so you can practice using the product with full access to all of its capabilities. When you log in to a Learning Project, you do so as the *Admin* user so that you can have full access to all of the Tracker components.

Logging In to Your Project

In order for you to log in to real projects, your Tracker Administrator must have already created projects and added your user ID to the projects you want to work on. The Administrator may have also assigned you a Tracker password.

Here is the dialog box that Tracker displays if you select File | Open Project:



In this dialog box, the Sales Learning Project is highlighted and will be opened when you click the Open button.

Notice that the check box labeled “Re-open project(s) on startup” is checked. This means that all selected projects will be opened again the next time you start Tracker. Tracker selects the last project you logged in to—in the example, the Sales Learning Project—but gives you an opportunity to select other projects, or to change to a different server. The Open Project dialog box appears if you close all projects before shutting down Tracker or set all projects to not re-open at startup.

You can log in to more than one project at a time and, in the first login dialog box, you can choose to automatically re-log in to the same set of projects every time.

keyword:
creating server
definitions

For a detailed procedure on logging in to Tracker, see the online help system.

Logging In After The First Time

After you have logged in to Tracker once, Tracker will log you in to the projects you last opened if you have checked the Reopen at Startup check box. Any projects that were open from the last session of Tracker will appear in the Open Project dialog box when you next log in to Tracker.

To log in to projects other than the Learning Project, your Tracker Administrator must have already created projects and added your user ID to the projects you want to work on. The Administrator may have also assigned you a Tracker password.

NOTE If your existing Tracker projects have never been opened in Tracker 7.0 (or later) before, you or your Tracker Administrator must create a server definition for it. See [“The Server Wizard” on page 62](#).

Logging In to Multiple Projects

NOTE This is possible only in the desktop client.

As mentioned earlier, if the **Reopen on startup** check box is checked, Tracker opens projects that were open the last time that Tracker was shut down and will attempt to log you in to those projects again the next time that Tracker starts up.

If your user ID and password are identical for each of the projects you are trying to log in to, Tracker logs you in to all of the projects as soon as you click OK on the Open Project dialog box.

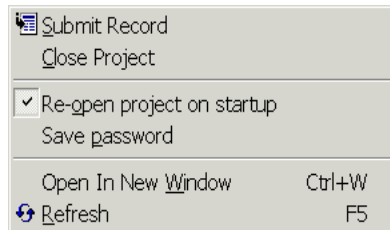
If your user ID or password are different for each project, Tracker will prompt you to enter your user ID or password for each project.

Skipping Projects During Login

Tracker automatically logs you in to several projects at once if you have checked the Reopen on startup check box on the Open Project dialog box. The Skip Project button is useful when you normally log in to several projects but on a particular instance want to skip a project. The Skip Project button skips the current project and moves to the next project on the login list.

NOTE If you are logging in to, for example, three projects, there is no way to skip only the middle project if you use the same user name and password for all three projects. You can use the Skip button to skip each project as its name appears.

You can set whether or not a project will open at startup by using the context menu that appears when you right-click a project's name in the Project pane:



The Server Wizard

The Server Wizard helps you create server definitions, which contain the connection information that Tracker needs to find and connect to your Tracker projects. The Database Management System user ID and password information is stored in the server definition.

The Server Wizard performs four different tasks, as seen in its first screen.

You can:

- Create a new server definition
You are prompted to enter the name of the new server, the DBMS type, and the DBMS location.
- Convert old server definitions
You are prompted to select a configuration file (such as PVCSTRK.INI) to convert. The Server Wizard then reads the connection information from the configuration file and converts it to a Tracker server definition.
- Edit a server definition
You are prompted to change the name, DBMS type, or DBMS location for the server.
- Delete a server definition
You are prompted to select a server definition to discard.

The Server Wizard coaches you through the steps necessary for each of these tasks.

keyword:
creating server
definitions

For step-by-step procedures for logging in to Tracker, see the online help system.

keyword:
converting old
definitions

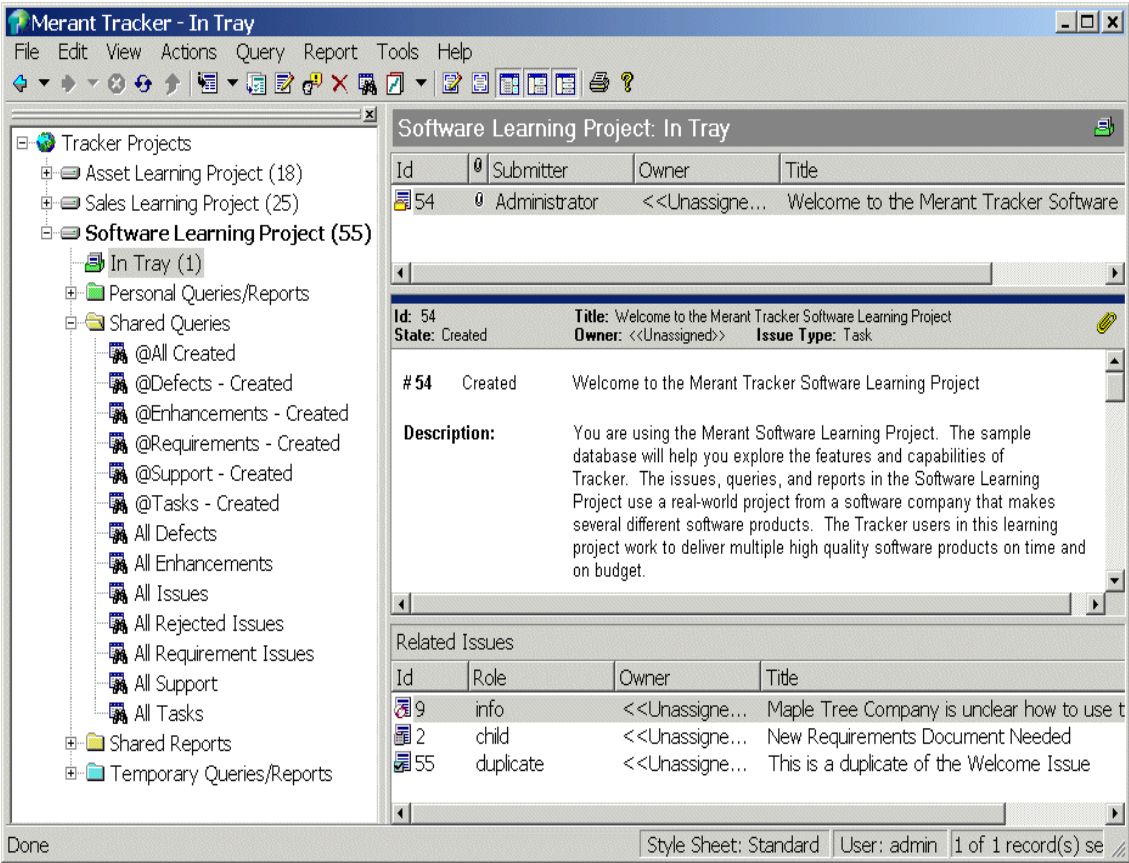
NOTE If your Tracker Administrator has set up a common Tracker installation using CONNECT.INI, the Administrator can take your existing Tracker projects and convert the server information contained in them to Tracker server definitions. If your Tracker

Administrator sets up your server definitions for you, you can simply select the appropriate server from the drop-down list in the Open Project dialog box and then select your existing project.

If your Tracker Administrator requests that you create new server definitions, or that you convert your existing server information, use the Server Wizard.

Navigating Multiple Projects

The Tracker desktop client allows you to open multiple projects. You can also choose to reopen the same set of projects each time automatically. (See ["Accessing Project Data" on page 56.](#)) When you have multiple projects open in Tracker, the projects appear as items in the Project pane in the left pane of the Tracker desktop:



The number in parentheses following the project name is the number of records, or issues, in the database for that project.

To move from project to project, in the Project pane, or left pane, click the name of the project you want to see. In the example above, you are looking at the Learning Project's In Tray. If Learning Project were highlighted in the left pane, you would see a quick view summary report of all the issues in the database.

Navigating Queries and Reports



When a query or report is first created, it is considered temporary until saved. Temporary queries and reports are located in the Temporary Queries/Reports folder in the Project pane and have a special icon, shown at left, next to them. They are named “Temporary Query #n” or “Temporary Report #n”.

If you have unsaved temporary, or new, queries or reports when you close Tracker those queries or reports are lost. In the desktop client, if you have modified an existing query to create the current query, the query icon will turn red, and you will be prompted to save the changes to the query when you close Tracker if you have not already done so. For more information on queries and reports see [Chapter 7, “Querying,” on page 117](#) and [Chapter 8, “Reporting on Progress,” on page 133](#).

Refreshing Your View of the Database

Tracker allows all users of the project database to access the database simultaneously. This means that users may be adding new issues, queries, and reports, as well as updating existing information at any time. The amount of time it takes to refresh depends on the size of the database, the type of operation you have active, and your current network traffic. You can allow Tracker to refresh your view of the data automatically, and you can refresh manually whenever you want to.

Refreshing Automatically

keyword:
refreshing

By default, Tracker is set to refresh your workstation every five minutes. If you want to change this, you must edit the PVCSTRK.INI file. Your Tracker Administrator can help you make this change.

Refreshing Manually



You can manually refresh information in the current project at any time (Tools | Refresh Current Project) or using the Refresh icon in the toolbar. This updates the window with any additions or changes made by you or other project members since the last time Tracker automatically refreshed your view of the data from the database.

Communicating Changes to Issues

Tracker allows automatic notification of changes to issues based on preset conditions. Both desktop and web clients allow manual notification of changes based on your selection of the issue.

For automatic notification of changes to issues, Tracker monitors changes by:

- User group
- User
- Field
- Notes
- Files
- Modules
- Dates and time

Your Tracker Server Administrator can set up notification options for user groups as well as for individual users in the Tracker desktop client and in the Administrator tool. When you set field level notification options, those options are “joined” with any field level notification options set by the Administrator. For instance, if you set a notification option so that you are notified

when an issue you own is closed, and the Administrator sets a notification option for the owner to be notified when an issue is updated, you will be notified *whenever either condition is true*.

This section discusses manual notifications and field level notification options you can set for yourself.

When you notify a user of a change, you actually either set a reference to an issue in the user's In Tray in Tracker, or you send a textual snapshot of the issue to the user's e-mail in box. This ensures that they will be able to view to the complete set of changes to an issue in the database. Of course, when the user views the issue in the In Tray, that set of changes is filtered through the style sheet the user has applied. (For more information on style sheets and what they do, see [Chapter 4, "Seeing Your Data Your Way," on page 73.](#))

Think of sending information to another user as "pushing" and receiving information as "pulling."

Pushing Information

You can "push" information about changes to an issue to another user. This is called manual notification. If the user is not a Tracker user and you have configured Tracker to use your mail software, you can use e-mail. If the user is a Tracker user, you can use either e-mail or the user's In Tray.

keyword:
notifying users

When you make a change, you can specify a user to notify (Actions | Notify User in the desktop client, or click the Notify User icon on the Actions tab in the web client). If you use e-mail to notify the user of the change, the message he or she receives can have the issue number and title in the message title and, in the body of the message, the subset of information you choose by selecting a style sheet (Tools | User Options | Manual Notification).

Pulling Information

keyword:
setting
notifications

You can also “pull” information about changes to issues you want to monitor into either your In Tray or e-mail in box. This is called automatic notification (Tools | User Options | Automatic Notification). This kind of notification is rules-based. To create the rules, you will, with Tracker’s assistance, describe attributes of the issue’s changes that are important to you (Tools | Notify Rules).

The table below shows which tasks are related to which kind of communication about changes to issues.

Method of communication	Direction of communication	
E-mail	Sending (pushing)	Receiving (pulling)
	<ul style="list-style-type: none">■ Configure Tracker to use your mail software.■ Manually notify the user.	<ul style="list-style-type: none">■ Configure Tracker to use your mail software.■ Set notification options.
In Tray	<ul style="list-style-type: none">■ Manually notify the user.	<ul style="list-style-type: none">■ Set notification options.

Tracker and Your Mail Software

NOTE Automatic notification via e-mail requires you to install Notify software and be logged in to an electronic mail system.

keyword:
e-mail

The online help systems in Tracker desktop and web clients provide instructions for configuring Tracker to use your mail software to send a copy of an issue immediately after it is changed.

Once you configure Tracker to use your e-mail system, it can generate a mail message in which the message subject line is the issue number and title; the body of the message is the information filtered using the style sheet the sender selected.

You can set up manual notification options if you use a mail system that is compatible with Tracker (Microsoft Mail, SMTP, VIM, MAPI, or Lotus Notes). Tracker provides style sheets that are specifically designed for these mail systems. These are included in the style sheet list in the Project Style Sheet dialog box.



NOTE The Tracker web client does not require that you choose a mail system since it delivers e-mail from the server.

Notification Options (Desktop Client)

keyword:
notification
options

You can specify the conditions under which you want to be notified of a change. For example, you can set up Tracker to notify you whenever any record is submitted, or when the Severity field is recorded without an owner's changes.

In addition to your user group notification options, you can set up notification options for your responsibilities and functions within your organization. Once you add a notification option, Tracker saves it until you modify or delete it.

Notification options are a set of rules that define the conditions under which you want to receive a copy of the issue including the new changes. These rules help Tracker identify additions or changes to any standard or custom field you care about. For Choice and User fields, you can add *from* and *to* conditions, using the **from** and **to** lists in the Change Condition Query dialog box (Tools | Notify Rules | Add | Notification Rule | When button).

You can also create complex rules using Boolean logic (incorporating *and*, *or*, *not*, and parentheses) in the Query Properties dialog box (Tools | Notify Rules | Add | Notification

Rule | Where button). For example, you might want to be notified when you become the owner of an issue only if the Priority field is set to critical.

Setting a notification option signals Tracker to send the issue to your In Tray or e-mail in box when a change occurs to the field tracked by the rule. If you already have the issue in your In Tray, Tracker highlights it in bold to indicate that it has changed.

You can create a rule to *remove* an issue from your In Tray from the Action tab of the Define Notify Rule dialog box (Tools | Notify Rules | Add | Notification Rule | Action tab).

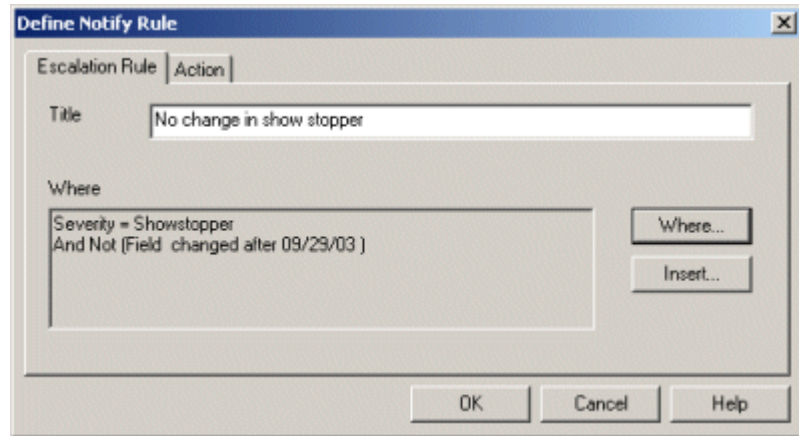
NOTE To use automatic e-mail notification, your Tracker Server Administrator must have properly configured at least one instance of Notify. See the *Tracker Administrator's Guide* for information about this product.

Escalation Rules (Desktop Client)

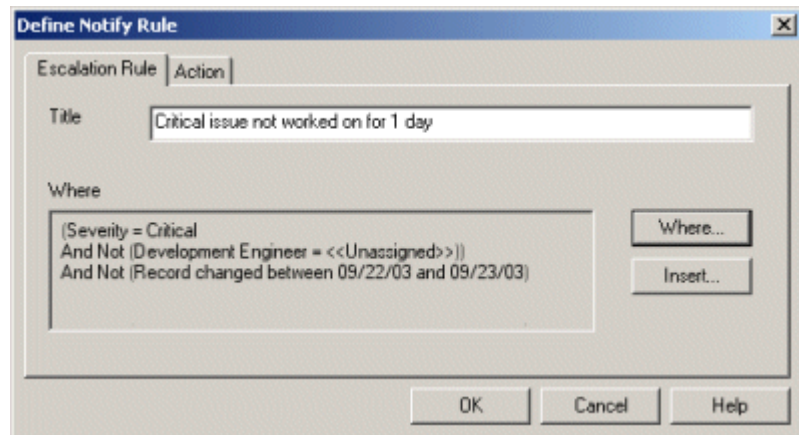
In addition to rules based on specific changes to records, you can set up *escalation rules* (Tools | Notify Rules | Add | Escalation Rule), which can include time-based conditions (such as changes in the last *n* days or since a specified date) as well as negative conditions (a change *did not* occur). For example, you might want to be notified of all records in which *a*) the Severity field equals 1 and *b*) there have been no changes to the issue in the last seven days.

Escalation rules enable you to flag issues that require special or immediate attention, and prevent them from “falling through the cracks.”

Here's an example:



In the following example, you want Tracker to notify you if any critical assigned issue hasn't been touched in the last 24 hours:



4 Seeing Your Data Your Way

In this Chapter

What Style Sheets Do for You	74
A Look at the Style Sheet Designer	77
Modifying Style Sheet Components	78
Applying Style Sheets	80
Deleting Style Sheets	82

What Style Sheets Do for You

Style sheets let you filter the total set of information available about an issue so that you need only see what’s important to you. You can apply a style sheet to the Detail pane in the In Tray, Query results, submit and update forms, and e-mail notifications depending on permissions set by your Tracker Administrator. In brief, style sheets allow you to:

- Enhance the presentation of issues in the In Tray, Query window, printed output, and e-mail notifications.
- Select which information is presented and how it is formatted.
- Specify paragraph formatting, line breaks, and fonts, as well as other parameters.

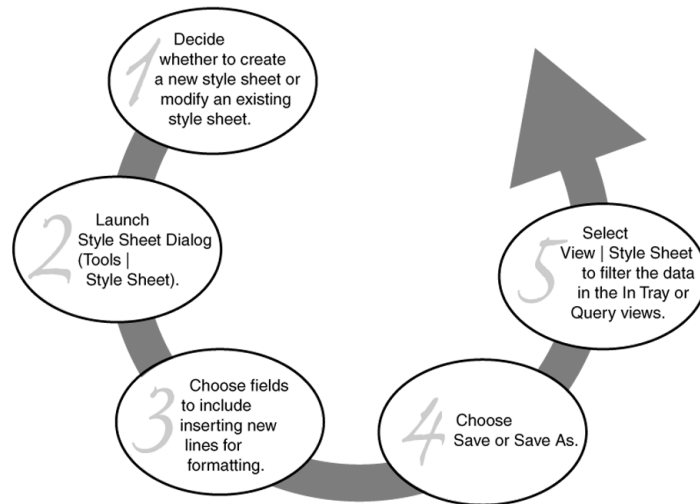
Tracker provides three types of style sheets:

This style sheet type...	Is available...
Personal	For you to define on your workstation.
Project	To all users on the same Tracker project.
System	To all users on all Tracker projects on the same server.

The permissions defined for your user group determine whether you can edit style sheets. There are individual permissions for personal, project, and system style sheets.

keyword: style sheets Each issue is a collection of data stored as fields in a record in the database. Depending on what your role is at the time you access

the issue, it is quite unlikely that you will want to see everything there is to know about that issue.



As the graphic above shows implementing a new style sheet is essentially a five step process.

About Style Sheets

The detail pane in the In Tray and in queries uses a style sheet to display your preferred view of the issue's complete data set. Style sheets allow you to define that preferred view. This allows users with targeted functions, such as quality assurance and programming, to see only the fields that matter to them, while preserving in the database all data that matters to other users.

Because the style sheets are created using HTML, you have all the functionality of HTML including all standard HTML hyperlinking, and also copying and pasting between applications. For instance, you can include:

- an internet e-mail address (<mailto:person@domain.com>).
- a web address (<http://www.company.com>).

- an FTP site (ftp://company.ftp) in any text field in a style sheet.

This means that you can use a text field to provide a link to your own internal help page describing your issue lifecycle and how to use Tracker within it.

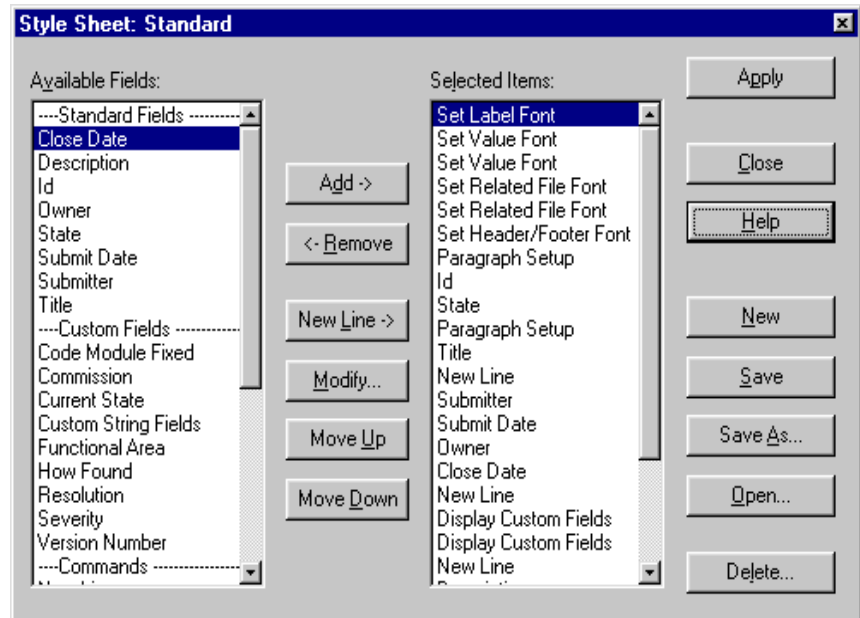
Linking to Other Issues

In addition, Tracker includes a hyperlinking feature that allows you to link issues to each other. In any text field on the General tab of the submit or update forms, such as the Description field, you can enter “#” followed by the issue number (#51). It will become “hot” or “clickable”; you will be able to left-click it to display the corresponding issue when you view the text field in the detail pane in your In Tray or in a query.

The fields are ordered in the display as you order them in the Style Sheet Designer.

A Look at the Style Sheet Designer

The Style Sheet Designer, shown below, allows you to create and maintain your style sheets.



NOTE When an asterisk appears next to the style sheet name, it indicates the style sheet was modified and not yet saved.

This tool allows you to:

- Apply a style sheet (see [“Applying Style Sheets”](#) on page 80).
- Create and edit style sheets.
- Modify style sheet components (see [“Modifying Style Sheet Components”](#) on page 78).
- Delete style sheets (see [“Deleting Style Sheets”](#) on page 82).

keyword:
creating style
sheets

Modifying Style Sheet Components

You can modify much of the appearance of the fields in a style sheet. After you select the standard and custom fields you want to appear in the style sheet, you can change the way those fields are shown in the output or add additional non-field-related information to the style sheet. The following components of a style sheet are customizable:

keyword:
formatting fields

- **Format fields**
You can specify how the fields are formatted on the forms. For example, you can bold the field names, or labels, or have the data entered in the field be displayed in a specific font.

keyword:
selecting fonts

- **Select fonts**
The Style Sheet Designer has four commands for defining style sheet fonts:

This font command...	Affects the font for...
Set Label Font	Field labels.
Set Value Font	Field values.
Set Header/Footer Font	Running headers and footers on printed output.
Set Related File Font	Displaying related files (these files must be in ASCII format).

keyword:
displaying
change history

- **Display change history**
Each time you update an issue, Tracker saves a record of the changes you made. You can use the Display Change History command to specify the number of changes Tracker displays in the detail pane of the In Tray or Query window.

keyword:
displaying
related files

- **Display information about related files**
Users submitting and updating issues can attach files that provide more information about the issue. If you select the

- Display Related Files command for your style sheet, you can choose what to display about the files.
- keyword:
displaying text
- Display text

You can insert custom text into the output if you put the Display Text command in your style sheet. You can also use this command to provide a link to a site where custom help can be found.
 - Specify paragraph setup

Tracker displays text objects in the detail pane in one of eight columns. By default, labels are in column 1, and values are in column 2. You can change the start position of each column by including the Paragraph Setup command in the Selected Items list of your style sheet. You can also define multiple paragraph setups for different groups of text.

Only text and commands *following* the Paragraph Setup command in the style sheet definition will have the new positions.

Once you have specified your column settings, these settings will be applied to any form to which you apply this style sheet.
- keyword:
specifying paragraph
- keyword:
displaying notes
- Display information about notes

Users submitting and updating issues can add notes that give more information about the issue. If you select the Display Notes command for your style sheet, you can choose what to display about the notes.
 - Display associations

If you have associated modules with issues, you can display them in the detail pane.
- keyword:
display relationships
- Display relationships

Display the issues related to the issue you are looking at in the detail pane.

keyword:
displaying VM
info

- Display VM Info

If you have been using Version Manager for this project, you can display detailed Version Manager information in the detail pane using the Display VM Info command.

- Display custom fields

If you added custom choice or string fields to issues, you may want to display them in the detail pane using the Display Custom Fields command.

- Display issue type

Display how issue type labels are formatted. When a style sheet specifies to display a field that is not valid for the current issue type, that field is not displayed.

For specific procedures for all of the above, see the online help keyword *modifying style sheets*.

Applying Style Sheets

keyword:
project style
sheet

The In Tray and Query window are split into three parts, or panes. The upper is the summary pane, the middle part is the detail pane, and the lower part is the relationships pane.

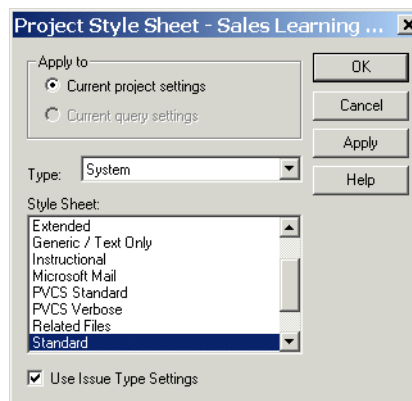
The style sheet used in the detail pane is specified by the Administrator for the current record's issue type at each lifecycle state. If the Administrator has set the style sheet as "user defined", Tracker uses your current project settings. The Administrator also configures the forms for submitting and updating records. The Administrator may choose to use the detail view for one or more forms, in which case the same settings that apply to the detail view apply to the forms.

To set a style sheet for the project settings, select View | Style Sheet, select **Apply to... Current project settings**, and then select a personal, project, or system style sheet.

You can also set a style sheet for query results. Select a query, select View | Style Sheet, select **Apply to... Current query settings**, and then select a personal, project, or system style sheet.

When you apply a style sheet, it affects both displayed and printed output. When results are sent to the printer, style sheet and print options determine the output. Print options control global settings like page orientation, margins, headers, and footers. Style sheets control field order and placement, field labels, field fonts, margin settings, and paragraph formatting.

Use Tools | Style Sheet Designer to define the fields you want on the style sheet and the order you want them to appear in. You can select a specific style sheet in the Project Style Sheet dialog box.



You can also select a style sheet in the Tracker web client using File | Options.

Style sheets are saved with the project information, and both the desktop and web interfaces have the same System and Project style sheets available when you access project information. If you

choose the same style sheet in each environment, you will see the same set of fields.

Applying a Style Sheet Using the Toolbar



Applying a style sheet to query output affects the detail pane of the Query or In Tray view and any printed output. You can select two separate style sheets for the two views. The Style Sheet icon (shown at left) displays the Project Style Sheet dialog box, which contains a list of style sheets available.

Deleting Style Sheets

keyword:
delete style
sheets

You may want to delete style sheets that are no longer useful as you work through multiple project lifecycles. You can specify the type of style sheet (personal, system, or project) to delete; however, you will be able to delete only those for which you have permissions.

5 Managing Your In Tray

In this Chapter

What Is the In Tray?	84
A Look at the In Tray	85
Working with Issues in the In Tray	87
Customizing the Appearance of Your In Tray	88
Importing Data into Tracker	91
Exporting Data from Tracker	92
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What Is the In Tray?



The In Tray is your personalized view of the issues for a given project.

What's in the In Tray?

You can manage issues from your In Tray. However, the number of issues that you keep in your In Tray directly affects login and sorting speed. For maximum performance, only keep records that are absolutely necessary in your In Tray.

You can perform the following functions from your In Tray:

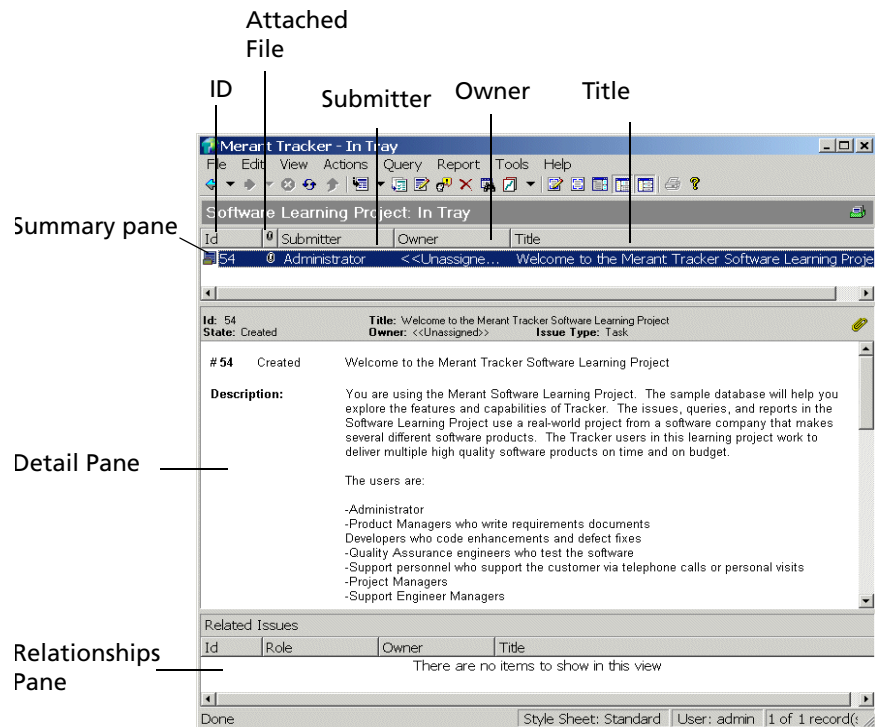
- Customize your In Tray
- Sort records in your In Tray
- Update records in your In Tray
- Print records from your In Tray
- View and extract related files
- Import and Exporting Records
- Clone records from your In Tray
- Relate records from your In Tray
- Remove records from your In Tray
- Notify users and escalate issues from your In Tray

A Look at the In Tray

Like the in-tray that might be on your desk, the Tracker In Tray holds references to issues from a single project database that you can view, route, print, and, depending on your user group permissions, update.

Tracker and other users notify you about changes to issues through your In Tray. Tracker lets you define what changes you are interested in by customizing the information that your In Tray contains.

The In Tray is shown below:



How the In Tray Works

The issues in your In Tray are references to records in the project database. The reference allows you to view the current data in the record. When you update an issue, you also update the record in the project database. The reference in the In Tray now points to an updated record.

How you use the In Tray depends on your function in the organization and how the Server Administrator has set up your user group. For example, members of the Submitter user group typically use the In Tray to view and track issues they have submitted. Manager user group members can use the In Tray to view all new issues and assign them to Development Engineers. Members of the Development Engineer user group can use the In Tray to manage and update issues assigned to them.

NOTE The number of issues that you maintain in your In Tray directly affects sorting speed. For maximum performance, you should maintain the fewest possible number of issues in your In Tray.

How Issues Get into Your In Tray

There are three ways for an issue to appear in your In Tray:

■ Notification

- Another user manually notifies you of the issue. (See [“Communicating Changes to Issues” on page 66.](#))
- Your notification options pull the issue into your In Tray.

■ Copying

NOTE Only the reference to the issue record in the database is copied. This action does not create duplicate records in the database.

- You drag and drop the issue from the summary pane of a query to your In Tray.
- You use Edit | Copy to copy the issue from the summary pane of a query to your In Tray.

NOTE You cannot copy issues between projects.

■ Add to In Tray on the context (right click) menu in a query

Working with Issues in the In Tray

The In Tray is your desktop in Tracker. You can customize a number of things about its appearance so it more closely matches your own personal workstyle. You can customize your In Tray in the following ways:

- Reorder, resize, add, delete, and configure columns in the summary pane to show different information about issues

- Apply style sheets to the detail pane to change the look and content of the information displayed there
- Sort issues to bring different classes to the top of the list
- Print issues from the In Tray to a printer or ASCII file
- Remove records from the In Tray

Customizing the Appearance of Your In Tray

You can change the look of your In Tray by adding and deleting columns in the summary pane or sorting records in different ways does not affect the project database.

Column Contents and Appearance

The columns you see in the summary pane of your In Tray can be customized to show only what you want to see. The online help contains detailed procedures for doing the following tasks:

keyword:
applying style
sheets

- Apply style sheets to your In Tray

keyword:
column
properties

- Change column properties, including:
 - Changing the type of information in a column.
 - Choosing display options.
 - Controlling the alignment of the information within the column.
 - Displaying icons (such as an open or closed envelope icon).

keyword:
inserting
columns

■ Insert columns

When you insert a new column into your In Tray, the new column is inserted to the right of the column you selected. Make sure to select the column to the left of where you want to insert your new column.

keyword:
resizing columns

■ Resize columns

You can manually resize a column or you can have Tracker size the column based on the length of the character string contained in the column.

keyword:
reordering
columns

■ Reorder columns

keyword:
deleting
columns

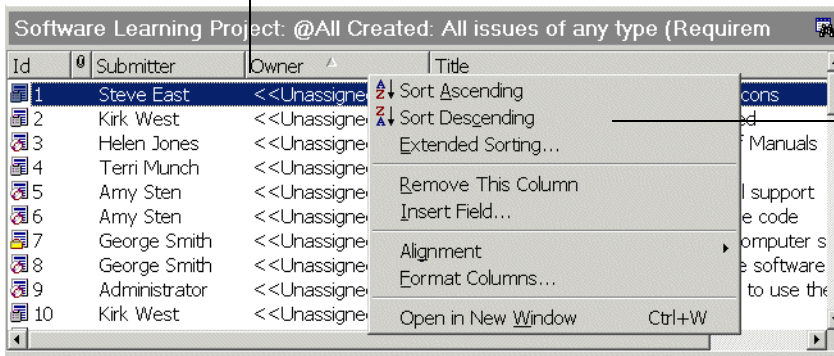
■ Delete columns

Sort Order in Your In Tray

You can sort records in your In Tray:

- Using summary pane columns.
- Using detail pane fields.

Right-click the column heading



Select a
sorting
option from
the popup
menu

Summary pane columns

By clicking the column header, you can quickly sort all issues in the view based on a single column. Columns can be sorted in ascending or descending order.

This order...	Sorts records from...
Ascending	Low to high (A, B, C... Z or 1, 2, 3... 10)
Descending	High to low (Z, Y, X... A or 10, 9, 8... 1)

Detail pane fields

You can use the Extended Sorting option, shown in the menu in the graphic [“Sort Order in Your In Tray” on page 89](#), to sort records based on detail pane fields in your In Tray. You can use up to four fields to sort your records. Sorting using multiple fields gives you more control over the order in which your records appear.

Sorting after an update can be useful, because changes to fields may cause records to change order. Instead of logging out of and back in to Tracker to reorder your records, you can resort your records.

Accessing Attached Files



You can attach files to an issue to provide more information about the issue. For example, you can save an e-mail message from your mail system as a text, rich text, or HTML file and attach it to the issue. To display that file later, right click the issue in a query or your In Tray and choose Save Attached File or click the paperclip icon.

Extracting is the process of writing a file stored in a project database to a file on your local workstation. The related file remains attached to the issue in the project database.

Removing Issues from the In Tray

keyword:
removing issues

Issues are not automatically removed from your In Tray as they are resolved. Over time, you may find there are a number of issues there that you no longer need to track. You can remove those issues from the In Tray without deleting them from the database (Actions | Remove Record). Removing a record from your In Tray does not delete the record from the project database.

Importing Data into Tracker

keyword:
import

You can import issues from another Tracker project, the Windows Clipboard, or a file. Importing data from an output file, for example, in Tracker's Comma Separated Values format, can be an easy way to merge data from another Tracker database. You can also import from any application that can save files in the formats Tracker can import. Your Tracker Administrator controls import privileges for each user.

NOTE To copy users, user groups, or fields between Tracker projects, the Server or Project Administrator must use the Copy operation in Tracker Administrator.

Mapping Source and Destination Fields

When you import records, you must specify where Tracker must get all the required information about the record. This is done by "mapping" source fields to destination fields. This is covered in more detail in the online help.

Destination fields are the standard fields in Tracker issues. It is not necessary to map every source field to a destination field. If a

destination field has a corresponding source field, it appears in the second column. If no source field is assigned, <NONE> will be displayed. Any custom fields that have been added to the project will also be displayed.

NOTE During an import, you can add a new user to the appropriate user groups if the groups exist. Otherwise, the users associated with the record lose their group assignments (such as Manager, Submitter, Support Engineer) and are assigned to the “public” group. Your Tracker Administrator must reassign users to their appropriate groups after you import the record.

Exporting Data from Tracker

keyword:
exporting
records

You can export issues to different Tracker projects, the Windows Clipboard, or to a file. You can also export into PCMS Data Interchange File Format (PDIFF) allowing you to import your data into a Dimensions database.

When you want to export records to another project or an external file to use as a report, you use the Tracker Export/Import Wizard. The Wizard guides you through the screens to select the records, output, format, and fields necessary for a successful export.

Exporting Records to Different Projects

When you export records to different projects, you are copying records across project boundaries. In the Export/Import Wizard, you select the project you want to copy the records into. When the projects are set up with the same issue types and relationships, the export process is simple.

If you are exporting records from an established project with several records, defined issue types and relationships into a project with little or none, make sure you carefully map the source fields to the destination fields. You may also want to double check the import options to make sure the import will work with the proper error handling.

Exporting to Dimensions PDIFF

You can export your files into the Dimensions PCMS Data Interchange File Format by choosing **Dimensions** in the **Export as File Type** drop-down list on the Export dialog box. The PDIFF Export Options dialog box opens after you have selected your export options.

NOTE Importing into the Dimensions database requires using files, so the **Clipboard** option in the Export dialog box is disabled for exporting to PDIFF.

Specify the Dimensions change control settings from this dialog box. This feature is for importing Tracker data into the Dimensions change control database. You should be an experienced Dimensions user to use this feature. See the documentation for Dimensions for more information about using that product.

keyword:
PDIFF

Reformatting Your Data

The following characters are unavailable in Dimensions. If your data contains any of the following characters, reformat it prior to exporting.

Character	Character Name
/	slash
\	backslash
\$	dollar sign

Character	Character Name
%	percent sign
.	period
;	semi-colon
""	quotation marks
-	minus
=	equals sign
()	parentheses
{ }	curly brackets
[]	square brackets

Using Compatible Fields

The Dimensions database requires compatible fields with the data you are importing from the Tracker database. A Dimensions project needs to be set up to characterize the Tracker fields in the same order. If you don't have a project currently set up, contact the Dimensions Administrator or Merant.

The Tracker export feature will automatically format the field names into capital letters and will use underscores for spaces.

NOTE Because of the length of the description and note text, the export process creates many auxiliary files and places them in the location where the export file is created. The primary export file references these auxiliary files, so it is extremely important that this entire file set be kept in the same directory.

Printing

keyword: When you print information from your In Tray, you can control printing the orientation, page breaks, margins, formatting of sections,

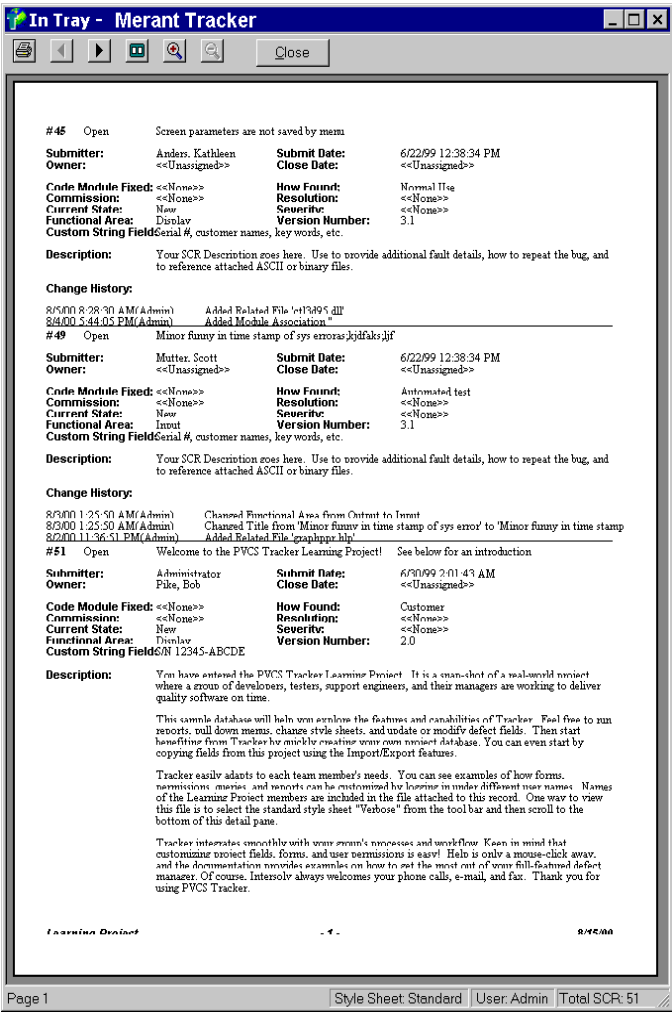
headers, and footers. Printing is controlled by the style sheet currently applied and the In Tray print options.

When you print from the summary pane of the In Tray, you can choose to print all or just the selected records. By default, if one record is selected, that record will automatically print. If no records are selected, all records will be printed. You can override these defaults in the Print dialog box displayed whenever you select File | Print or choose the printer button from the toolbar.



You can preview your print job using Print Preview (File | Print Preview). Print Preview shows you one or two pages of the document as it will appear when printed on the currently selected printer. As the image of a typical print preview screen below shows, you can navigate between pages, toggle between

one- and two-page viewing, and zoom the display to different levels of magnification.



All standard Windows printing options are available, including printer selection and printing to a file.

Printing from the Tracker Web Client

Printing issues from the Tracker web client is different from printing from the desktop client. In the web client, you can specify a set of issues to print and then create an HTML file from which to print the output of records in summary or detail format.

To set your printing options:

- 1 Select the File tab and click the Print Options icon. The Project Printing Options dialog box appears.
- 2 Choose whether these settings apply to the whole project or just to the selected query.
- 3 Specify the text for the header and footer. You can use macros (such as \$date) either by typing them directly or by clicking the arrow to the right of the text box and choosing from the drop-down list.
- 4 Select **Break between each record** to insert a page break between each record.
- 5 Select **Print grand totals** to print the total number of records at the end of the printout.
- 6 Click OK to save these settings.

To preview and print the issues:

- 1 Select the File tab and click the Print Preview icon. The Preview Options for In Tray dialog box appears.
- 2 Specify whether to print the entire document or a set range.
- 3 Specify whether to print the summary pane or the Detail pane.

- 4 Select the style sheet to be used.
- 5 Click OK. The file opens for previewing and printing.

NOTE Make sure your browser's print settings allow colors, shading, and images. In Internet Explorer, go to Tools | Internet Options | Advanced | Printing, and check the **Print Background Colors and Images** option. In Netscape or Mozilla, go to File | Page Setup, and select the **Print Background (colors & images)** option.

6 Submitting and Updating Issues

In this Chapter

What Is an Issue?	100
Style Sheets' Effect on Forms	101
Efficient Data Entry	102
Submitting Issues	102
Updating Issues	104
Cloning Issues	105
Copying Issues	105
Managing Issue Types	106
Using Relationship Types with Issue Types	110

What Is an Issue?

Recording and tracking issues is a key part of the software development and maintenance cycle. Issues must be recorded when defects are discovered, and tracked until they are resolved and closed.

Tracker includes submit and update forms as well as the ability to create custom forms, which make monitoring issues a simple, flexible process. The submit form gathers the data for a new issue and creates a record to contain that data in the project database. The update form modifies data in pre-existing issue records. Custom forms can be used for any method of gathering and keeping track of asset data in Tracker.

NOTE The term *issue* is interchangeable with a variety of other terms, for example, SCR, change request, and record. Issue is used in this guide as the most specific term applicable across multiple types of customer environments representing different issue types.

What Happens When You Submit an Issue?

Tracker provides a user friendly view of a complex database. The application you see on your desktop provides a window into a database within a database management system (DBMS). The data is stored in the DBMS according to a structure specified by Tracker and compatible with the requirements of the specific DBMS.

There is a “Tracker Master” database, which governs and, at a high level, organizes all the project databases associated with this implementation of Tracker. Each project, in turn, is contained in

one of the associated databases. Each issue represents a type of record in a particular project database. One way to think of the relationship between Tracker and the DBMS is that it is a typical client/server structure. Tracker is the client; the DBMS is the server.

When you submit an issue, Tracker dates the information that you enter in the fields on the submit form, or dialog box, and creates a record in your project's database, assigning each entry in the form to a predetermined field in the record. This makes querying and reporting on the information far easier.

Style Sheets' Effect on Forms



Style sheets determine how predefined fields appear on forms and the order in which they appear. The default style sheet that you have selected for the Detail pane (In Tray or query results) is also applied to any forms that the Administrator has set to **use detail view style sheet**.

The style sheets and update forms are defined for each state value in an issue type. Each issue type has its own state-form value defined by your Administrator.

keyword:
setting up style
sheets

When your Tracker Administrator configures the submit and update forms, the Administrator can assign a default style sheet. The Administrator's selection overrides your selection in the Project Style Sheet dialog box.

Efficient Data Entry



Tracker supplies visual clues about required fields, automatic time and date entry, and record linking within a project to make it easier to enter data quickly, easily, and concisely.



Required fields are indicated by an exclamation point next to the field. If the field has a valid entry, the icon changes to a green checkmark. If there is no entry or the entry is invalid, the exclamation point is red.



Fields that are to contain date and time information have a clock next to them. Clicking the clock icon enters the current date and time for you.

Linking to Other Issues

You can link one issue to another in the submit or update forms. In either the Description field or a Note, entering a pound sign (#) followed by the number of an issue creates a link to that issue. When viewed in the detail pane, the links become active. If you left-click the link, Tracker displays the update form for the issue named in the link.

Submitting Issues

keyword:
submitting
issues

Tracker displays the submit form when you create the issue. Depending on the type of issue you are about to submit, you may have several different submit forms to choose from.

Your Tracker Project Administrator can change the fields displayed on the form, the order in which they are displayed, and

the names of the fields. The Administrator can also add custom fields.

Your ability to submit and update information depends on how your Server Administrator assigned you to a user group. It may also depend on how your forms, or dialog boxes, have been customized.

User group permissions, the design of the forms, and the issue type determine the following:

- Fields available on the initial submission form
- Fields available on subsequent update forms
- Menu choices available from the Actions menu

You can add notes and attach files to an issue to include more specific information. For information on adding notes and attaching files, see [“Adding Notes and Attaching Files to Issues” on page 103](#).

When you click the Submit button, Tracker sends notification of the new issue to you and other users who have appropriate notification options set. For information on setting notification options, see [“Communicating Changes to Issues” on page 66](#).

For information on using module information, see [“Custom Query Basics” on page 124](#) and [“Using Module Reports” on page 154](#).

Adding Notes and Attaching Files to Issues

keyword:
adding notes

You can add notes or attach files to an issue. Notes are descriptions attached to an issue that provide additional information about the issue. Your Tracker Server Administrator can create a list of predefined note titles for consistency. For

example, all submitters could record information about their activities in a note titled *Submitter Notes*.

Add a note or attach a file if you want to expand on some aspect of the testing or your job responsibility. For example, you can include test case results, screen captures of error messages, and other information that should be kept with the issue to facilitate resolving it.

Depending on your style sheet, notes appear in the issue details view and are limited to 32KB. Files are attachments associated with the issue. They can be saved to your local hard drive and opened. There is no size limit for attached files.

Updating Issues

keyword:
updating issues

Tracker displays the update form defined for the current state of the issue type each time you double-click an issue in the In Tray or query details.

Your Tracker Project Administrator can change the fields displayed on the form, the order they are displayed in, the names of the fields, and add custom fields.

The update form, or dialog box, is constrained by user group permissions and customization just like the submit form. When you update an issue, you append information to the issue as change history. Just as you can during submission, during update you can add notes, attach files, and notify users of changes.

There are separate submit and update forms based on the current state of the issue type, because organizations typically want to accept different information at different stages of the issue's lifecycle. For example, you must specify a title for your issue at submission, but very likely, your Tracker Administrator will not want you to modify that title at update time.

Cloning Issues

keywords:
cloning records

You can clone issues within a project. When you clone a record, you are copying the values within that record to a new record. The Tracker Administrator can set up which fields are prepopulated into the cloned record and whether or not attached files and notes will be copied to the new record.

Cloning can save you time when it is necessary to submit multiple issues on the same subject where there are only minor changes between the issues.

For example, if a feature that worked a certain way for several iterations of the product is changed but the manuals and help systems that support that feature still state the old functionality, then you need to submit an issue for each deliverable that contains the old information. You can submit the initial issue with all the relevant information, then clone it and change only the field values necessary for each documentation deliverable.

Copying Issues

You can copy issues across projects using the Export/Import Wizard. When you copy issues as an export, you need to set up the format of the issue to make sure that the project that is receiving the issues is set up in a similar way.

When you copy issues across projects, the change history from the issue being copied does not appear in the new issue.

You can also copy issues to the clipboard, to a file, and to Dimensions. See [“Importing Data into Tracker” on page 91](#) and [“Exporting Data from Tracker” on page 92](#) for more information.

Managing Issue Types

Your Tracker Administrator can define multiple issue types for you to utilize in Tracker. Issue types group together related records so you can manage them differently from other related groups of records. Every record is of a particular issue type, such as Enhancement or Defect.

At the time an Administrator defines an issue type, the Administrator can also define a work flow, or transition lifecycle, for it. This both restricts and facilitates an issue's movement through the various phases defined for your use.

You can submit and update issues of a particular type. You can also query for an issue type, notify users of changes to issues of a particular issue type using the Add Notify Option dialog box, and obtain various reports based on issue type. Issue Type is also a field selection for the Summary Pane.

An unavailable (hashed out) field in the Summary Pane indicates that the field is not valid for that issue type.

Submitting and Updating Issue Types

The submit and update forms are configured by your Administrator to promote valid field usage. The form used for the Update page is configured for the issue's current State field value.

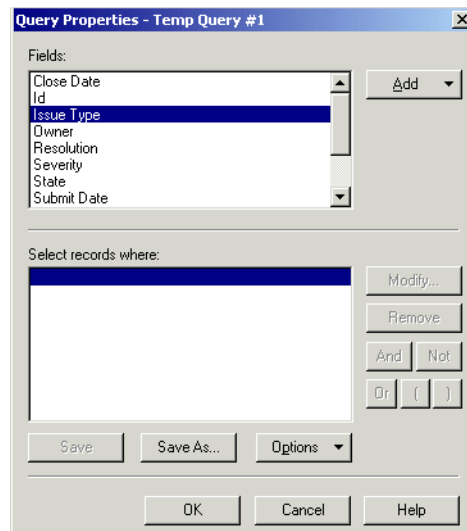
If the form or style sheet used by the issue type contains fields that are not valid for the issue type, those fields will not appear in the Submit <Issue Type> dialog box or the Update <Issue Type> dialog box.

To choose a different issue type to submit:

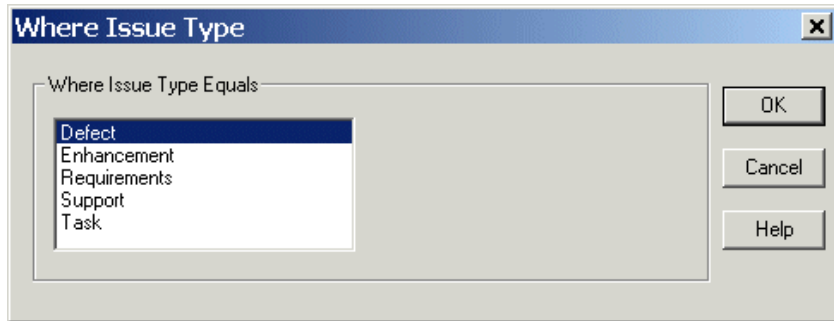
- 1 Click the down arrow next to the Submit button.
- 2 From the drop-down list, select the issue type you want to submit.

Querying for an Issue Type

Choose the Issue Types entry from the Fields list and click the Where button to open the Where Issue Types dialog box and choose which issue types to include in the query.



If you are using the Change Condition to construct your query, the Issue Types selection appears in the Fields list:.



When you query on a field, such as “Duplicate,” the query selects only records for which the field is valid. If the field “Duplicate” were not a valid field in this case, no records would be returned from the query.

Reporting on Issue Types

Trend reports, Distribution reports, and Quick View reports are all customizable to show activity by issue type. In the Quick View report, the Closed numbers reflect all issues that are in a final state, and Open numbers reflect issues that are not in a final state.

To show trends by issue type:

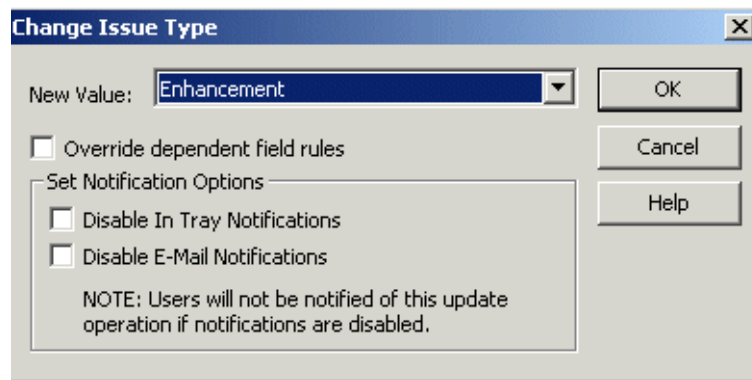
- 1 Choose Report | Trends. The Trend Report Properties dialog box appears.
- 2 Select the Local Trends tab.
- 3 Click the Add button. The Define Custom Trend dialog box appears.
- 4 Select Issue Type from the Field list.

To show distributions by issue type:

- 1 Choose Report | Distribution. The Distribution Report Properties dialog box appears.
- 2 Select Issue Type from the X-Axis drop-down list.

Changing Issue Types

You can change the type of a particular issue if you have been given permission by your Tracker Administrator. If you do not have permission to change issue types, the Change Issue Type command will not be available to you from the Actions menu.

**To change an issue type:**

- 1 In the summary pane, select the record or records whose issue type designation you want to change.
- 2 From the Actions menu, choose Change Issue Type. The Change Issue Type dialog box appears.
- 3 Choose a new value from the drop-down list and modify any other settings you want to change.

NOTE Only project Administrators can change notification options in the Change Issue Type dialog box.

Importing and Exporting Issue Types

When you import or export records, you can specify a particular issue type as a source or output field. If you do not choose an issue type when you import the record, the default issue type is used.

You must have permission to import or export a record by certain issue types. See your Administrator for additional information.

Using Relationship Types with Issue Types

When your Server Administrator has created issue types for you to use with issues, you can manage groups of related records even more easily using relationship types.

About Issue Relationships and Relationship Types

Your System Administrator can set up relationship types, which are a set of rules that govern the relationship of two or more issue types by their classification of dependent or informational, and their hierarchical roles of master or detail. Issue relationships provide a means to manage and process large groups of records more easily and efficiently.

If your Administrator has given you permission, you can create and delete relationships between issues.

Creating Issue Relationships

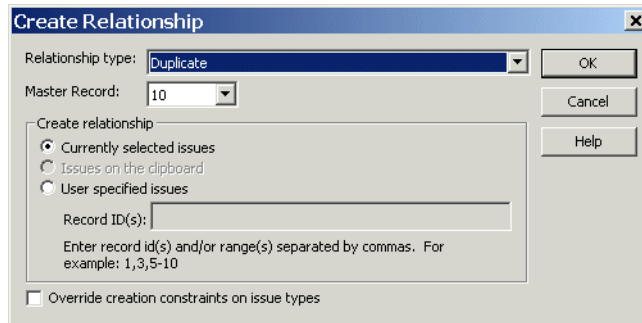
If you have permission, you can use a relationship type to relate issues in Tracker desktop and web clients. The master role is determined by the rules of the relationship type.

You can create a relationship using one of three methods:

- Using issues on the clipboard in the desktop client.
- Using currently selected issues.
- Using record IDs that you specify.

To relate issues selected in the summary pane:

- 1 In the summary pane, select one or more issues you want to relate.
- 2 Choose Actions | Add Related Record. The Create Relationship dialog box appears.



- 3 Select a relationship type from the list of available relationship types.
- 4 Choose the option Currently selected issues.

To create a relationship of issues copied to the clipboard:

- 1 Copy the issues you want to include in the relationship onto the clipboard.

- 2 Choose Actions | Add Related Record. The Create Relationship dialog box appears.
- 3 Select a relationship type from the list of available relationship types.
- 4 Choose the option Issues on the clipboard.

To create a relationship of issues you specify:

- 1 Choose Actions | Add Related Record. The Create Relationship dialog box appears.
- 2 Select a relationship type from the list of available relationship types.
- 3 Choose the option User specified issues.

Create Relationship

Relationship type: Duplicate

Master Record: 11

Create relationship

☐ Currently selected issues

☐ Issues on the clipboard

☒ User specified issues

Record ID(s): 12

Enter record id(s) and/or range(s) separated by commas. For example: 1,3,5-10

☐ Override creation constraints on issue types

OK Cancel Help

- 4 Enter the record IDs of the issues for which you want to create a relationship.

NOTE If you are a Project Administrator, you can select the Override creation constraints on issue type check box to create relationships between issue types that are not allowed by the relationship type definition.

Understanding the Relationship and Detail Panes

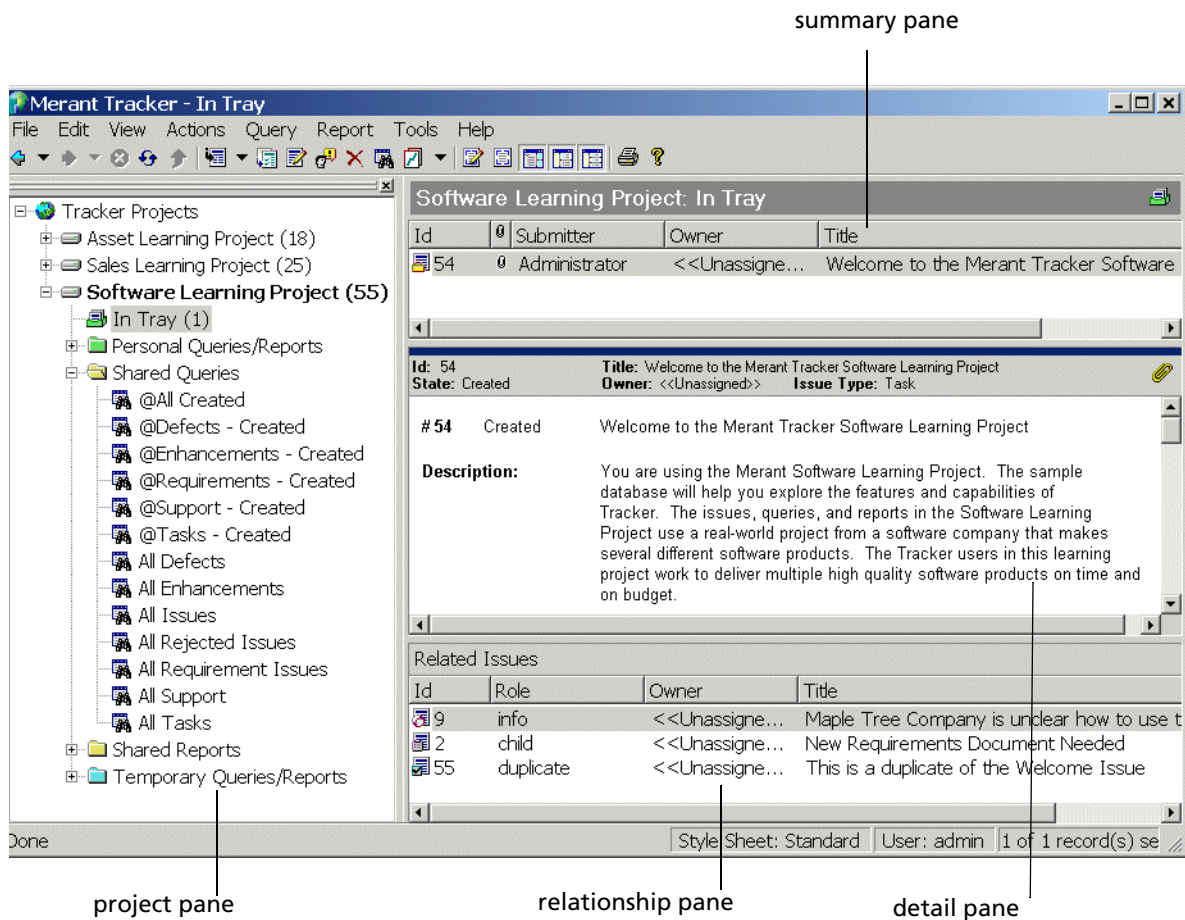
The relationship and detail panes display different information about a selected issue in the summary pane.

The relationship view provides a one-line description of each record, similar to the summary pane. However, you view the related records shown in the relationship view by double-clicking on a relationship.

The detail pane provides a full description for the record selected in the summary pane.

You can change the size of the summary, detail, or relationship pane by dragging the split bar with the cursor.

You can select View | Relationship Pane and View | Detail Pane to toggle between the two views.



From within the relationship view, you can also print, notify users about, update information about, or add to your In Tray an issue that is within the same project. You can even remove relationships if you have permission.

The relationship view is customizable. Right-click a column to use the pop-up menu for inserting, formatting, removing, or moving a column. You can also use the pop-up menu to sort records in the selected column.

NOTE An issue may exist multiple times within the relationship view, but each row has a different role. If you have not configured the columns for the relationship view, a standard column set includes a role column

You can apply style sheets to format the appearance of the Detail pane. Style sheets also control the format of printed records.

For more information, see the Tracker online help.

7 Querying

In this Chapter

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What Are Queries?

Queries are questions posed to the database. These questions are mostly SQL (Structured Query Language). However, Tracker minimizes the complexity of creating these questions with a set of dialog boxes that help you build searches using *Where* and *Change* conditions, as well as keyword and module searches (see [“Custom Query Basics” on page 124](#)).

These searches and conditional statements are created using dialog boxes with query options, drastically simplifying the process of creating the query to be run against the database.

In Tracker, the result of a query is a set of issues that meet the conditions described in the query.

Why Use Queries?

Run a query when you want to examine, print out, update, or notify others regarding a range of issues matching specific criteria. The following list includes examples of queries that users with different positions in your organization may want to run:

If you are a...	You may want to run a query to...
Submitter	Find all issues submitted last month that have not been resolved.
Support Engineer	Find all issues similar to the one you are investigating, or list all issues fixed in a specified time range. You can use keyword searching to extend your query into description or note text.

If you are a...	You may want to run a query to...
Manager	Find all critical issues logged against a project, or identify unassigned issues and assign them. Managers can perform any function except those assigned only to the Server Administrator.
Development Engineer	Generate prioritized lists of issues to investigate.
Quality Engineer	Find all issues that have been fixed by the development engineers. Once the fixes are verified, issues can be closed.
Technical Communicator	Find all issues that impact the documentation.

Types of Queries in Tracker

There are three primary kinds of queries in Tracker:

- *Shared* queries that anyone in your project team with permissions to use queries can see. For more information, see [“Shared and Personal Queries” on page 122](#).
- *Personal* queries that only you can see, modify, and use. For more information, see [“Shared and Personal Queries” on page 122](#).
- *Temporary* queries that have been created during the current work session and not yet saved.

keyword:
Tracker saved
queries

Tracker is shipped with a set of standard queries that you can modify for your own use to create a custom query. A custom query can be saved as either a Shared or a Personal query, and until it is saved, it will be held as a Temporary query.

You can see the complete set of standard queries in your Shared queries folder the first time you start Tracker. For more

information about custom queries, see [“Custom Query Basics” on page 124](#).

Ways of Manipulating Queries

Tracker lets you manage the queries you have saved. If you have the appropriate permissions, you can right-click the query in the Project pane and modify permissions associated, change the query owner, modify the query, or delete the query.

As further detailed in the online help, you can:

keywords:
saved queries,
custom queries,
style sheets,
printing,
using where
conditions,
copying,
notifying users
permissions,
managing
queries

- Run custom queries.
- Run saved queries.
- Apply style sheets to query results.
- Print query results.
- Set query options to update records found.
- Copy records to the Clipboard.

NOTE Copying a record to the Clipboard places all record fields in ASCII text form, regardless of the style sheet applied to the Query window.

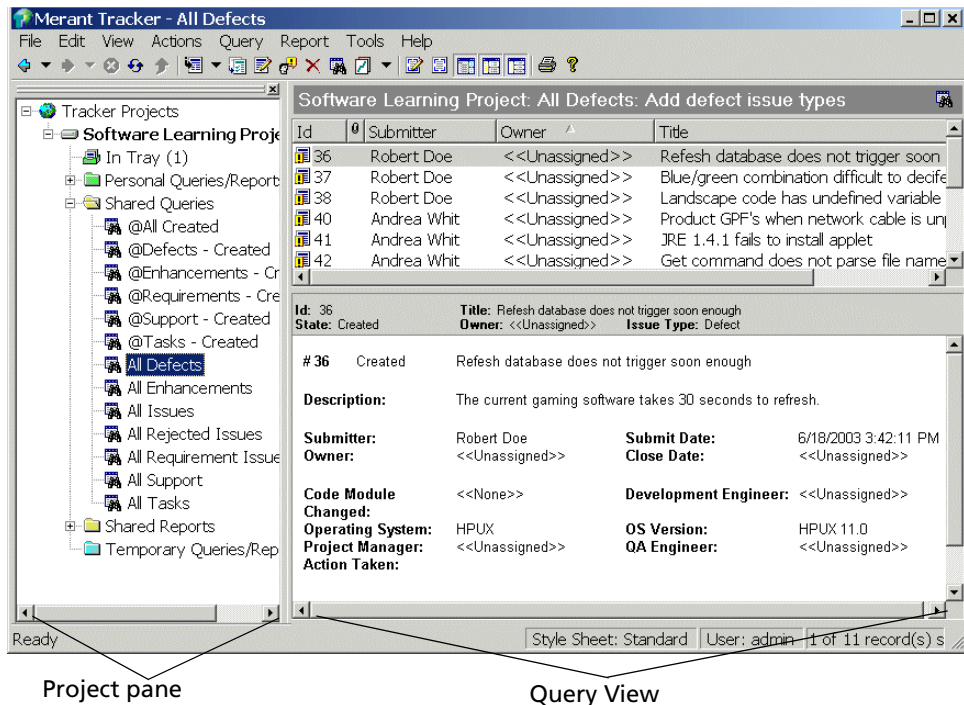
- Use Notify to create pointers in your In Tray to issues that appear in the Query window or to notify (send a reference to an issue to) other users.
- Change query permissions.
- Delete queries.

NOTE Adding, modifying, and deleting shared queries affects all users associated with the project.

A Look at the Query View

The Query view operates much like the In Tray. Depending on your user group permissions, you can examine, print, update issues, or forward them to other users using notification.

Tracker displays query results in the Query view as shown below. A shared query is highlighted, and we see a summary list of issues for that query as well as the detail of the currently highlighted issue.



If you click a query (for example, @Critical List) in the Project pane, Tracker runs the query and displays the results in the summary pane. As in the In Tray, you select an issue to view its details. (For information about Tracker views, see [“Tracker for Windows” on page 35.](#))

If you place your cursor over the query name in the Project pane, Tracker displays the query name and a brief description.

If you double-click a query in the right-hand pane—for example, @Critical List—Tracker displays the appropriate dialog box to edit that kind of query with the data for the query already loaded in the dialog box.

Shared and Personal Queries

keyword:
modify
permission

All queries belong to one of two categories: personal or shared. Personal queries are visible only to you. Shared queries are visible to all Tracker users. Only the owner of the query, as listed in the Modify Permission dialog box for that query, or a user who is a member of a group with Modify Permission or Modify Owner permission can change permissions on a query once it is shared.

Though Personal queries are not accessible to other users, all personal query names must be unique within a given project database.

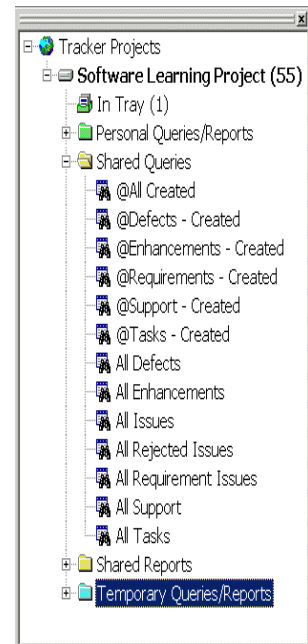
Be cautious about creating Shared queries. Even if your project team is small and the number of issues in your project database is relatively small, the list of queries can quickly become quite long!

Temporary Queries

When you create a new query, a temporary query named “Temp query #n” is displayed in the Temporary Queries and Reports folder in the Project pane, or left-hand pane.

When you close Tracker:

- You will be prompted to save changes to any modified Shared or Personal queries held as temporary queries (desktop client only).
- You will *not* be prompted to save changes to new queries held as temporary queries. Those temporary queries are lost upon close. Save the query if you want to be able to use it later.



NOTE When you modify an existing query, the icon turns red to indicate that the query has unsaved changes. The same rules hold for saving modified queries as for saving new temporary queries.

Updating Issues from the Query View

Updating records from the Query view works the same as updating records from the In Tray. Your ability to update records in the Query view depends on the permissions assigned to your user group. See [“Submitting and Updating Issues” on page 99](#), for more information about updating issues.

Custom Query Basics

adding where conditions, using where conditions, keyword search, using change conditions, module search

You can create custom queries to search for the following:

- Specific issues
- Specific issue types
- Specific field values
- Field values combined in logical expressions
- Specific text in titles, descriptions, note titles, and note text
- Issues associated with specific source files

Tracker supports creation of custom queries based on two kinds of searches and two kinds of conditional statements. The table below describes the abilities of each.

Use . . .	To . . .
Where condition	Search for issues that contain fields where certain conditions are true. For example, all issues where the Close Date field contains 02/15/2000.
Change condition	Search for issues where a specific field, note, file, or module (or source file) shown in the change history contains certain targeted information. For example, you can search for the issue where TARGETED.CPP was updated by user Fred Jones during a specific time period.

Use . . .

Keyword
search

To . . .

Specify a list of words that Tracker will search for across all issues in the database. You can require that issues found include all of your search terms (AND) or a minimum of one from the list (OR).

This kind of search looks at issue titles and descriptions, note titles and text, notes with specific titles, or any subset thereof. You can even require that only terms with exactly the capitalization you enter (case sensitivity) are retrieved.

NOTE If you search for multiple keywords in multiple text regions (for example, in record titles and note titles) and you select **And** as the logical operator, Tracker looks for records containing *all* specified keywords within *any one* text region. For example, if you search for “golf” and “Woods” in record titles and note titles, Tracker does not return a record that has “golf” in the record title and “Woods” in a note title unless both “golf” and “Woods” appear in the same title.

Use . . .	To . . .
Module search	Specify a list of source code files associated with issues to search for across all issues in the database. You can require that issues found be associated with all of the files you specify (AND) or a minimum of one from the list (OR). You can also create a more general search that finds all issues associated with any file (or module).
Where Relationship	Specify the relationship type and the role that accompanies the relationship type to query for relationships among issues. For example, you can search for a child role in a parent-child relationship by selecting “parent-child” relationship type and “child” as the role. This query will result in providing all the issues with child roles in the relationships.

keyword:
custom query The structuring of Where conditions and Change conditions is discussed in more detail below.

keyword:
printing options When creating a custom query or modifying a saved query, you can specify sorting options, style sheet association, and printing options. Tracker saves these options with the query and uses them each time the query is run. Setting sorting and printing options for queries is similar to the process for setting these options in the In Tray. Printing options available predefine the format of the printed query.

Where Conditions and Module Searches Module searches let you search for records that are related to specific modules (or source code files).

If your search criteria contains both a Where condition and a module search, a record must match the criteria specified by both conditions to be selected.

Where Conditions and Keyword Searches

Keyword searches let you search for records that contain specific text strings in record titles, record descriptions, note titles, and note descriptions.

If your search criteria contains both a Where condition and a keyword search, a record must match the criteria specified by both conditions to be selected.

keyword:
using where
conditions

Where Conditions

Where conditions are the building blocks of your query statement (see [“What Are Queries?” on page 118](#)). *Where* conditions let you specify which fields to query on and what values to look for in those fields. You can query on a single field or a combination of fields joined together in a logical expression. This section only addresses *Where* conditions as they pertain to fields.

NOTE Case sensitivity may be selected by your Database Administrator during server setup. This could affect the results of your search, because it overrides the **Case Sensitive Search** option in the *Where* <string field> dialog box.

To combine *Where* conditions to form expressions:

- Use *And* to search for records that match multiple conditions
- Use *Or* to search for records that match any one of multiple conditions
- Use *Not* to search for records that do not match a specified condition. For example, using not with *Where build fixed equals 581* will result in a set of all records with fixes that did not occur in build 581.
- Use () to control the precedence of expression evaluation

Change Conditions

(Desktop client only)

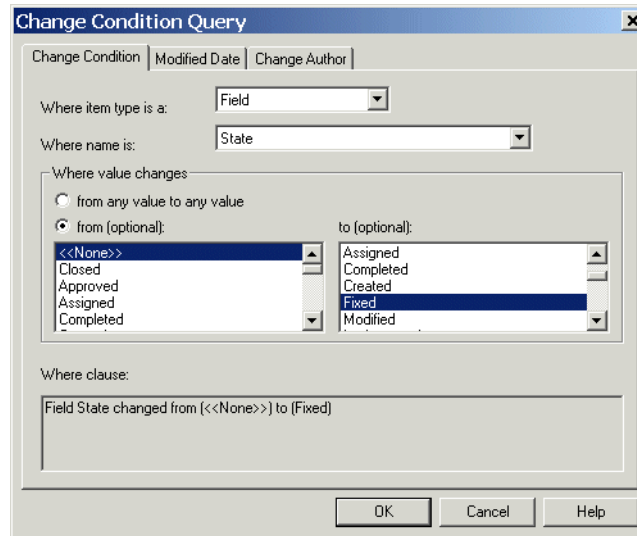
keyword:
using change
conditions

Change conditions allow you to request a list of issues that have changed within relative and absolute dates you specify. For example, you can request a list of:

- Issues changed by a specified user in the last 20 days or during the month of March.
- Changes made by anyone where the Resolution field is marked from fixed to rejected before the last three months.
- All enhancement issue types submitted within the last seven days.
- All records changed to a final state in the last 10 weeks.

You create a Change condition for your query by choosing a record, field, note, file, or module type and specifying a date range where a change occurred. For example, if you are searching for Investigation Notes that were added during a particular part of the product development, you can select Note from the **Where item type is** a drop-down list, select the note

title and author, and then select dates that encompass the time notes were added.



Date ranges on the Modify Date tab can use absolute dates or relative time ranges. You can specify any number of dates going back to January 1, 1970.

Using Where Conditions with Change History

Change conditions look for *conditions that have changed*. If you are querying for current values in fields in an issue as well as ones that have changed, you need to set up Where conditions in addition to Change conditions. For example, a search might look for issues that have changed from any state to Fixed, but also issues that are Fixed right now. Therefore, you would create:

- a Change condition that looks for all issues with State issue type changed to Fixed, set the time to between six and zero days, and
- a Where condition that looks for all issues where the State issue type is currently Fixed.

Using Change Conditions with Metrics

You can use Change conditions with Metrics to track rate of change over time. When you set up a metric, you can specify a saved query from the query list. If you save a query with Change

conditions, you can use that specialized query with your metric. For more information, see [“Metrics and Queries Containing Change Conditions” on page 165](#).

NOTE Queries created with the Change Conditions feature will not be visible to users using Tracker version 6.0 or older. Only queries without the Change Conditions will be visible.

Using Change Conditions with “Not”

After you have created your query with the Change conditions, you can use the Modify, Remove, And, Or, (), and Not selections in the Query Properties dialog box. If you choose Not with change conditions, it will negate the entire change statement. The query will provide a list of all the issues that were changed outside of the specified time frame. This query will be especially time consuming to run because it searches for every changed issue outside of that specified time.

For example, if you select Record as the change type made by any user where the date modified is between December 31, 1999 and January 3, 2002, the Where clause will read:

Record changed between 12/31/1999 and 01/03/2002

To negate this clause in the Query Properties dialog box, click Not. In the Select records where... field the query will read as:

Not (Record changed between 12/31/1999 and 01/03/2002)

Hence giving you all the records changed before December 31 and after January 1, and all unchanged records.

You can use Change conditions with the Reports feature if you have created and saved a query containing Change Conditions.

Dependent Field Queries

keyword:
parent-child
relationship,
dependent field
query

If your project Administrator has configured dependent fields for your project, you can use dependent field queries to capture issues with mismatched data. Dependent fields are set up by your project Administrator to impart process control and ease data entry during submit and update.

You may want to check for mismatched data with a query to:

- Find legacy issues filed before dependent relationships were configured in your project.
- Check the effectiveness of the dependent field relationships by evaluating how often users with the appropriate permissions purposely create mismatched data.
- Check if users accessing the project with older versions of Tracker are creating mismatched data during issue updates and submits.

These queries run only one level deep. If you have dependent field relationships that extends deeper than one level, you need to create a query for each parent level. For example, if the "Owner" field is dependent on the "Sub-Product" field, which is dependent on the "Product" field, you would need to run a dependent field query for the "Product" field and then the "Sub-Product" field.

Invalid State Field Queries

When records are in an invalid state (a state value that has been deleted), you can run an Invalid State Field Query from the Query menu. When you run this query, it appears as a temporary query and collects the issues that are in the invalid state. If you have permissions to override field mappings, you can correct them.

8 Reporting on Progress

In this Chapter

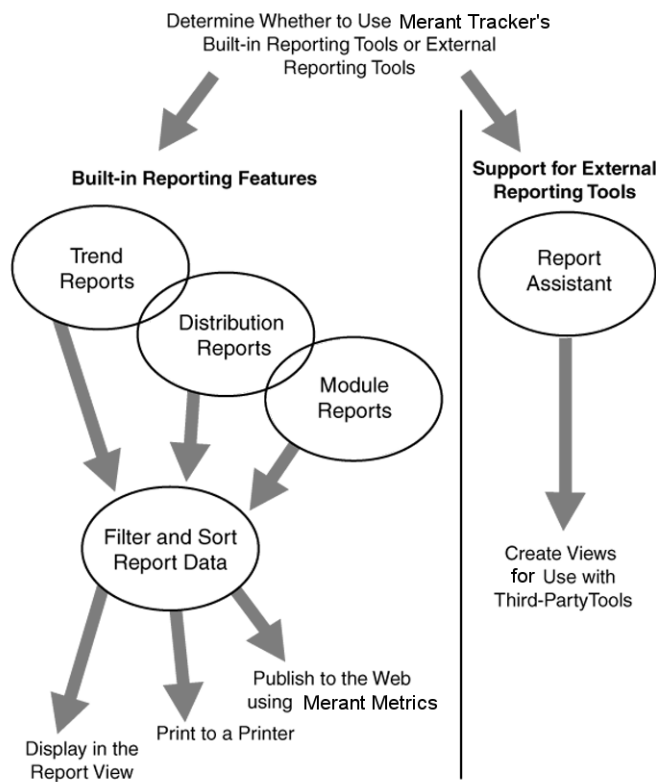
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What Are Reports?

Reports are a graphical or textual representation of a summarized analysis of a range of issues. This chapter describes four kinds of reporting features available in Tracker and gives examples of when to use them and what they look like.

The Report Model

The conceptual model for reports lets you select data from the database, sort it, weight it, and then illustrate it using predefined or customized report features.



The graphic illustrates choices for reporting. You can use Tracker's integrated reporting features or an external reporting tool of choice.

Five Kinds of Custom Reports

Tracker provides the following kinds of custom reporting features:

- keyword:
defining trends

■ Trend

Trend reports describe changes in field values over time. For more detailed information about Trend reports, see ["Using Trend Reports" on page 145](#).
- keyword:
distribution reports

■ Distribution

Distribution reports describe categories of issues in terms of the percentage they represent of a specified group of issues. For more detailed information about Distribution reports, see ["Using Distribution Reports" on page 151](#).
- keyword:
module reports

■ Module

Module reports describe which issues are related to which source files. For more detailed information about Module reports, see ["Using Module Reports" on page 154](#).
- Report Assistant

This feature in the Administrator tool generates custom views of the database according to SQL (Structured Query Language) statements. You can run complex queries and reports against these views much more quickly. For more information, contact your Tracker Administrator.
- keyword:
metrics

■ Metrics

Metrics is an application shipped with Tracker that facilitates reporting data on the web. For more detailed information

about Metrics, see [“Reporting Data on the Web with Metrics” on page 155](#).

Why Use Reports?

Reports can answer questions about a project, such as:

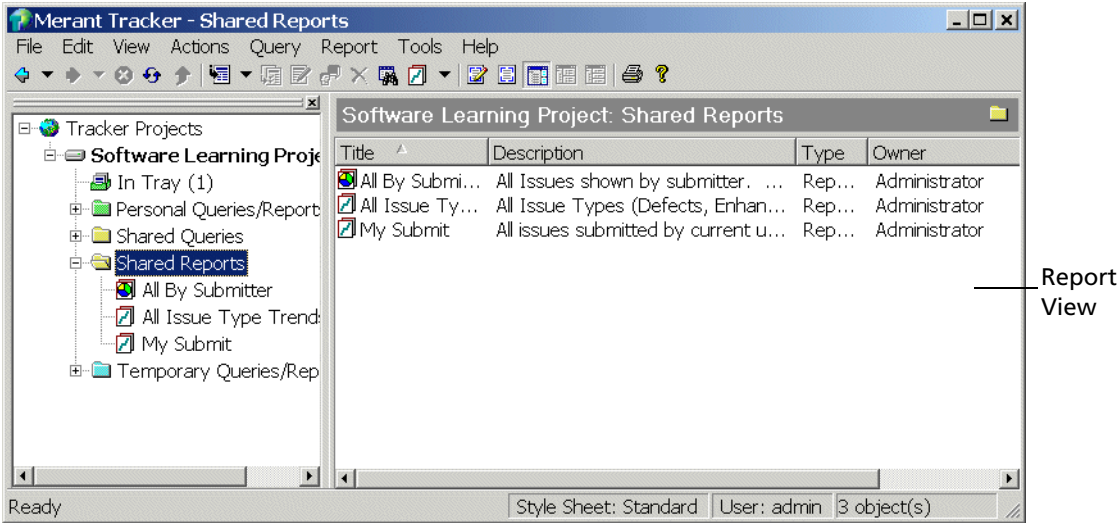
- What is the distribution of issues among code modules?
- How many issues have been found by each submitter? Are there some submitters who are better than others at finding showstopper issues?
- What is the rate at which issues are being submitted, fixed, rejected, or closed?

Tracker’s reporting facilities let you:

- Run predefined reports.
- Modify predefined reports to suit your needs.
- Create new custom reports.
- Delete reports.

A Look at the Report View

The Report view, shown below, is the destination for all report output.



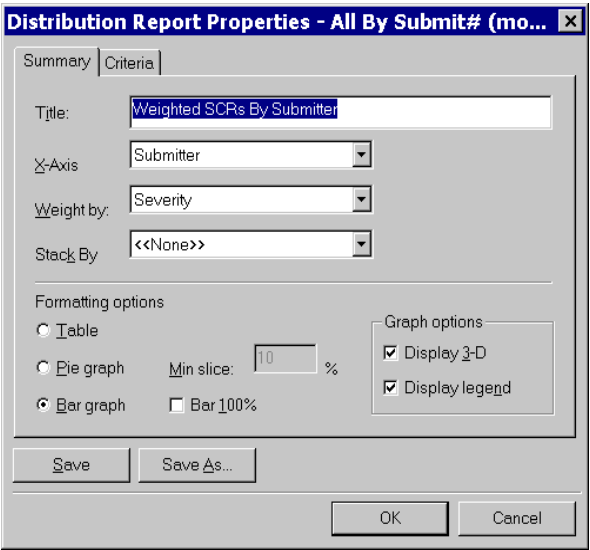
keyword:
Tracker's saved
reports

In the graphic above, the Project pane, or lefthand pane, shows the shared reports folder expanded. This folder contains all reports that everyone on your team can use. This folder also contains the predefined reports shipped with Tracker. These reports can be modified to create versions more appropriate to your requirements. You can modify or delete them.

If you single-click a report in the lefthand pane, Tracker runs the report and displays the results in the righthand pane.

If you place your cursor over the report name in the lefthand pane, Tracker displays the report name and a brief description. If you double-click a report name, in this case, Submit Trends#, in the lefthand pane, Tracker displays the appropriate dialog box

needed to edit that kind of report, with the data for the query already loaded in the dialog box.



NOTE To use this feature, your Tracker Administrator must have granted you rights to edit reports.

**Copying
Report Results
to the Clip-
board**

keyword:
copying reports

You can copy the results of a report to the Clipboard and use it in another application, such as a word processor or spreadsheet.

You can switch to another application, such as Microsoft Word or Microsoft Excel, and paste the Clipboard contents. Reports displayed in tabular format display the data as text, separated by tab characters. Reports displayed as a graph display the data as a Windows metafile.

Managing Reports

keyword:
modify report,
add report,
report
permissions

You modify and delete existing reports in the Project pane in Tracker. You can only access these features if your Tracker Administrator has given you the appropriate permissions.

Shared and Personal Reports

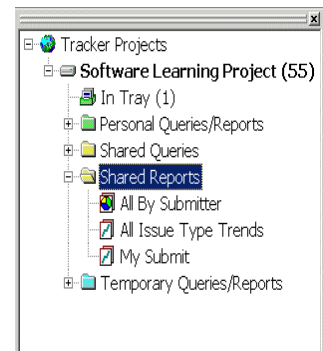
All reports belong to one of two categories: personal or shared. Personal reports are visible only to you. Shared reports are visible to all Tracker users. Only the owner of the report, as listed in the Modify Permission dialog box for that report, can change permissions on that report once it is shared.

Be cautious about creating Shared reports. Even if your project team is small and the number of issues in your project database is relatively small, the list of reports can quickly become quite long!

Temporary Reports

When you create a new report, a temporary report named “Temp report #n” will be displayed in the Temporary Reports folder in the Project pane, or lefthand pane. When you close Tracker:

- You *will* be prompted to save changes to modified reports held as temporary reports.
- You *will not* be prompted to save changes to new reports held as temporary reports. Those temporary reports are lost upon close. Save the report if you want to be able to use it later.





NOTE When you modify an existing report, the icon turns red to indicate that the report has unsaved changes. The same rules hold for saving modified reports as for saving new temporary reports.

Displaying Reports

You can run a report by double-clicking it in the Project pane, as shown above. When you run a report, Tracker displays the results in the Detail pane, or righthand pane. If no records matched the report criteria, the report does not produce any output.

Report Display Options

For all Tracker reports except Module reports, you can select how your report output is displayed. You may also add or customize report titles, labels, and legends.

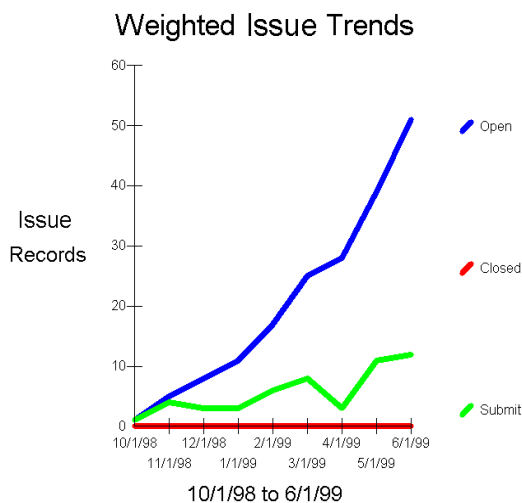
NOTE If you run a report that contains too many report labels, the report labels may not appear. For example, assume you have twenty labels on the x-axis of a given report. If you make the window very small, at some point as you scale the window down Tracker will remove the labels. When you expand the window, the label will come back. If you create a report with 100s of labels, there may not be a way to show them all.

Tracker’s report display options include:

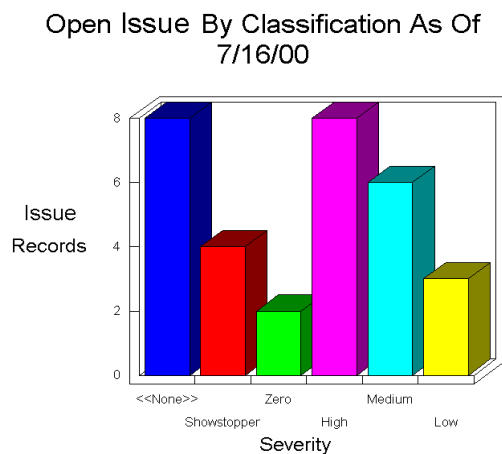
- Tabular reports representing raw, numeric data collected and displayed in a two dimensional table.

Open Issue By Classification As Of 7/16/00	
Sunday, July 16, 2000	
<<None>>	8.00
Showstopper	4.00
Zero	2.00
High	8.00
Medium	6.00
Low	3.00

- Line charts representing a series of data points connected using lines.

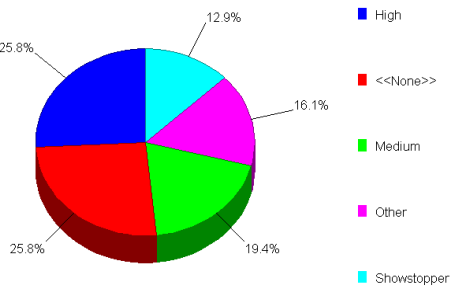


- Bar charts representing data points by bars on a graph.



- Pie charts representing data in percentages. The size of a pie slice is proportional to its percentage of the whole.

Open Issues By Classification As Of
7/16/00



Exploding the Next Slice in a Pie Chart

keyword:
exploding slice

If the report you are running is displayed as a pie chart, one of the slices may be “exploded” or broken away from the main pie. This emphasizes the information in that slice. By default, the largest slice is exploded first.

Printing Report Results

keyword:
printing

Printing report output is similar to the process for printing from the In Tray. For an overview of printing, see [“Printing” on page 94](#).

About Tracker’s Predefined Reports

Tracker provides predefined reports that you can modify for your own use. You can also create new reports from scratch (see [“Creating Custom Reports” on page 144](#)). Adding, modifying, and deleting shared reports affects all users associated with the project.

keyword:
Tracker’s saved
reports

Tracker’s online help contains a list of predefined reports that are accessible by all users. For an overview of using these reports with your own data, see [“Displaying Reports” on page 140](#).

Predefined Report Types

Predefined reports fall into the following categories.

This report...	Provides this information...
QuickView	Tabulates the state of all issues in the project. It tells how many issues have been submitted or resolved, and how many are still open. This report is available from the Project pane at all times by clicking the name of the project in the lefthand pane.
Trend	Shows the relationship between issues and calendar time, allowing you to see how quickly issues are being submitted and resolved.
Distribution	Categorizes issues and totals the number or percentage of those records for each category.
Module	Shows the relationship between issues and modules by displaying a table of all modules associated with each issue or all issues.

keyword:
clipboard

You can print any of these reports, copy results to the Clipboard, and delete reports. Detailed instructions are provided in the online help.

Creating Custom Reports

Tracker lets you define custom reports that can be powerful tools for showing the state of your software project.

Starting with a predefined report as your base, you can add weighting criteria, add Where conditions, and change the output format to produce a report that meets your specific needs. Once you've defined a custom report, you can save it in the Tracker database so it is available to other Tracker users on the same software project.

The three report types that can be customized and saved are:

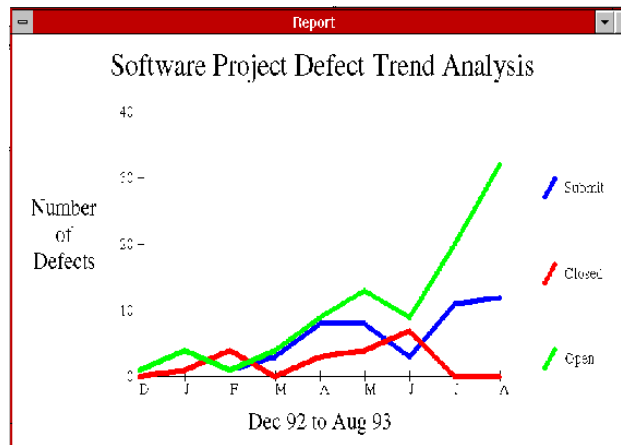
- Trend (see [“Using Trend Reports” on page 145](#))
- Distribution (see [“Using Distribution Reports” on page 151](#))
- Module (see [“Using Module Reports” on page 154](#))

NOTE You can also create custom reports using either the Report Assistant or Metrics. The Report Assistant uses SQL (Structured Query Language) to create a set of views of the data. This makes running a complex report against the database much faster. Your Tracker Administrator has access to this tool in the Tracker Administrator application.

Metrics creates web pages based on a customized set of queries and reports. These web pages are updated automatically from the database. See [“Reporting Data on the Web with Metrics” on page 155](#) for more information about Metrics.

Using Trend Reports

Trend reports answer the question, “How many issues per year or month have the specified value in the specified field for each trend?” As the manager of a software project, you will want to determine the stability of your product. A Trend report can show the number of issues submitted, closed, and open over time. This can help you predict such things as when few enough open or unresolved issues will exist that you can ship your product.

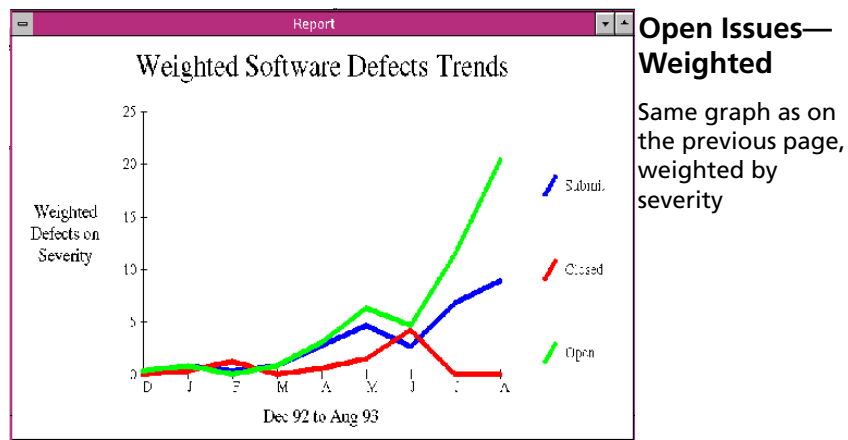


Open Issues—Unweighted

Trend reports let you look at issues over time—notice the trend for open issues is upward while the trend for closed issues indicates none have been closed in a month

To evaluate the differences in issue type, use a simple Where condition to focus on a specific aspect of issue discovery or status. For example, you can create a trend that includes all Open issues where the Resolution is Fixed and the QA Owner is John Smith. You can think of this as showing the trend of fixes coming into John Smith’s verification queue.

You can determine the quality trend for the product by creating a Trend report that weights the priority of the issues in the trend.



NOTE Weighted trends are only available for Standard trends. See the Glossary in the online Help at the bottom of the Contents tab for definitions of “weight” and “Where condition”.

When you run a Trend report, Tracker selects all records of a particular type that meet the criteria you define. Those criteria can include Local Trends or Global Trends that may be included from other existing trend report definitions.

You can include trends from other projects if you want a view into trends across projects using a commonly defined custom trend. For example, if each of your projects has a Verified issues trend, you can include each project’s Verified issues trend in a single trend report and get a report of Verified across all projects. Another way to use the Global (or included) Trends feature is to create a report of submitted issues where you include trends with different Where conditions from other reports. This report could show total submissions as well as the individual trends for submissions within different subcategories, for example, for each module in a new version currently in development.

Tracker formats the results for the selected output type and displays them in the Report view.

Standard Trends Shipped with Tracker

There are two kinds of trends in Tracker: standard trends and custom trends. The standard trends are the three trends that ship with Tracker and cannot be deleted, although they can be deselected by unchecking them on the Local Trends tab of the Trends dialog box. Custom trends are any trends you create. They may only be created on Choice fields. Standard trends are described in more detail in the table below.

Select...	To plot the records...
Submit	Submitted during each time period (month, quarter, and so forth). This includes either the actual number of issues submitted, or the weighted sum of the issues submitted (if a weighting field was selected).
Open	Open at the end of each time period. This includes the actual number of open issues, or the weighted sum of the open issues (if a weighting field was selected).
Closed	Closed during each time period. This includes either the actual number of issues whose state has transitioned to closed, or the weighted sum of the issues whose state has transitioned to closed (if a weighting field was selected).

Defining Trend Reports

There are three procedures involved in defining trend reports, depending on the type of report you want to create.

- Defining Trend Report Scope and Layout

keyword:
defining trends

You can define the date range for which the report will include data and how the report will present the data.

- Defining Local Trends

Once you have named your report and chosen a report style (see [“Defining Trend Report Scope and Layout” on page 148](#)), you may modify or create new local trends for the report.

- Using Trends From Other Reports

keyword:
using trends

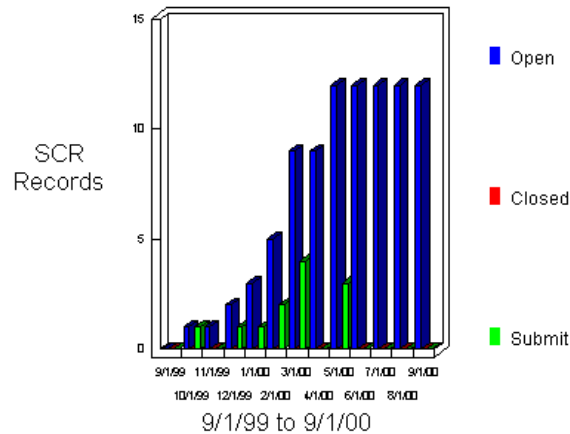
Once you have named your trend report and chosen a report style, you may include trends from other reports, which may be in the same or other projects, in your report.

NOTE You may use trends from other reports in other projects, but you will be required to log in to those projects before you can include their trends.

Sample Trend Report

This sample Trend report helps answer the question, “Are the I/O and Memory Manager modules showing an increasing or decreasing rate of bug fixes?” The report below shows the results from the trends inquiry on code module fixes for I/O and the Memory Manager. It appears that the quality of the I/O and Memory Manager modules may be worsening, creating a backlog of fixes for QA to verify.

I/O Memory Manager Code
Module Trends



NOTE If you choose a time period such as Month, Week, Quarter, or Year, Tracker will display data from the first day in that time period to the first day in the next time period, rather than data for the exact dates specified. This preserves the data in comparable summary groupings. To display data from one absolute date to another absolute date, choose Day in the X-axis field.

The following dialog boxes show the values selected to create this report. Only the Summary and Local Trends tabs are

displayed because no trends were required from other reports to generate this report.

Trend Report Properties - (Untitled) (modified)

Summary | Local Trends | Displayed Trends

Title: I/O Memory Manager Code Module Trends

X-axis: Month

Start date: ☒ 9/28/99

End date: ☒ 9/28/00

Formatting options

☐ Table

☐ Bar graph

☒ Line graph

☐ Display data points

Graph options

☐ Display 3-D

☒ Display legend

Save Save As... OK Cancel Help

Trend Report Properties - (Untitled) (modified)

Summary | Local Trends | Displayed Trends

Available trends:

☒ Open

☒ Closed

☒ Submit

Add... Modify... Delete

Where:

Code Module Fixed = Memory Manager

Or Code Module Fixed = I/O

Where... Insert...

Save Save As... OK Cancel Help

keyword:
distribution
reports

Using Distribution Reports

Distribution reports focus on specific aspects of issue management: who found the issue, how was it discovered, or which code module was fixed. Tracker sorts issues into a set of specified categories and then displays totals or percentages for each category with an optional weighting factor.

Use Distribution reports to evaluate how many of the current open issues are high priority, or showstoppers. This lets you prioritize engineering efforts so you can better establish when your product will be ready to ship to customers.

What Questions Do Distribution Reports Answer?

Distribution reports help answer questions such as:

- “How many issues per category?”
- “How many issues are assigned to each team member, and what type of issues are they?”

Categories can be drawn from the standard and custom fields, including: submit and close dates, issue severities, submitters, and development engineers.

NOTE To answer the question, “How many issues per calendar time?”, look at Trend reports. However, when doing a distribution report on a date field, Tracker will use a month as the time period. The X-Axis label will display the first day of that month for the column.

When you run a Distribution report, Tracker:

- Selects all issues that meet the criteria you define in a Where condition.

- Sorts the issues first by the selected category, and then by the stacking or column-wise selection within that category.
- Weights the individual sort groups.
- Formats the results for the selected output type and displays them in the Report window.

Using Weighting

Custom choice fields can be “weighted” or assigned a value that acts as a multiplier in calculations executed in Distribution reports and Metrics. Weights of 1 to 100 are allowed. These values are percentages of a whole, in this case, a whole issue. They are used to describe the relative importance of groups of issues.

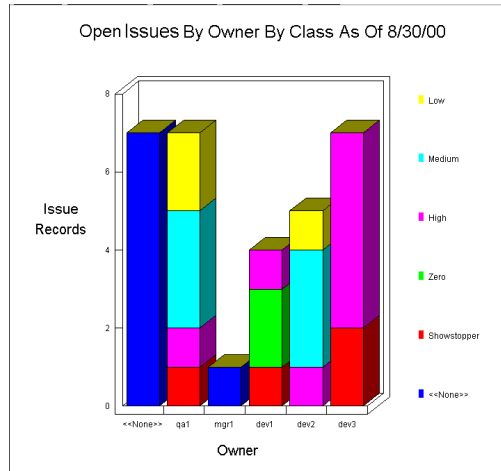
For example, assume you have three customers, A, B, and C. Customer A provides 50% of your revenue, Customer B provides 30% of your revenue, and Customer C provides 20% of your revenue. You might want to apply these percentages to your Customer choice field so that urgent defects reported by Customer A are weighted more heavily than defects reported by other customers.

Suppose each customer reported 33 defects. If you were to generate a Distribution report as a pie chart, though the real number of defects reported by each customer is equal, the piece of the pie representing Customer A’s defects would be 50% of the pie because Customer A is weighted at 50%.

NOTE Weights must be applied to choice fields by your Tracker Administrator. There is no way for a user without Administrator privileges to see the specific weights applied.

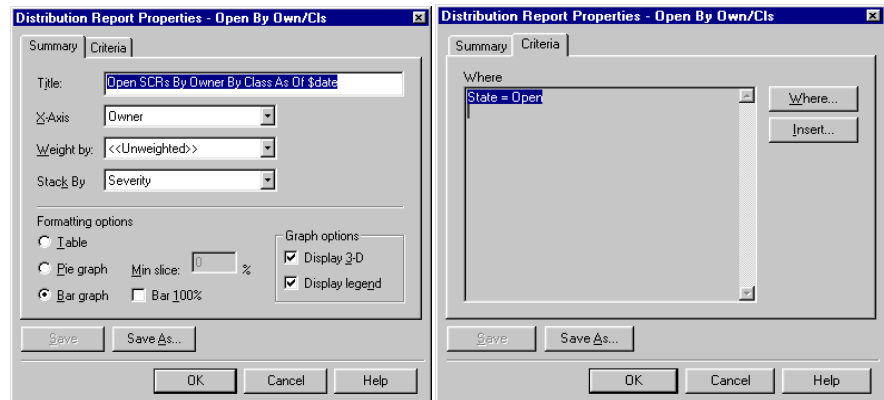
Sample Distribution Report

This sample Distribution report helps answer the question, “What is the distribution of issues among code modules?” The report below shows the results in a bar chart that easily depicts the relationships between modules.



Most of the extreme severity issues are in the I/O and Memory Manager modules, indicating that they're probably good candidates for further testing

The following dialog boxes show the values selected to create this report.



Using Module Reports

keyword:
using module
reports

The Module report gives you a summary table of the relationship between modules and issues.

NOTE For Module reports to be useful, the programming team must make frequent use of module associations, which can be done either in Tracker or TrackerLink.

What Questions Do Module Reports Answer?

Module reports help answer questions such as:

- Which source files where updated to resolve which issues?
- Which issues were resolved by updating which files?
- Which modules have the highest activity?
- Which modules have the highest activity in relation to severity 1 issues? (You'll need to insert a query into the module report to get this answer.)

Sample Module Report

The Module report shown below shows all modules associated with issues currently logged in the Learning Project.

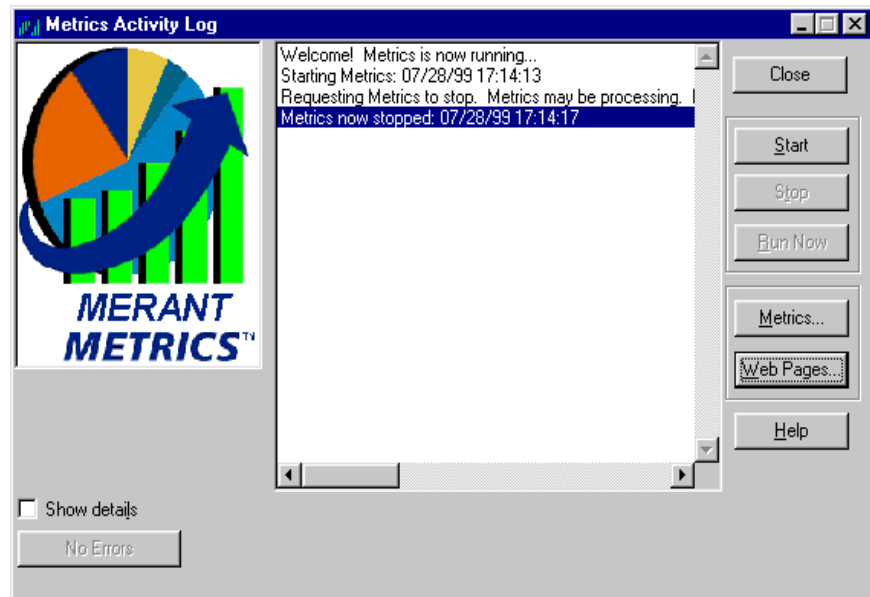
All Modules Sunday, July 16, 2000		
Issues	# Modules	Modules
2	2	error.c() error.h()
5	2	error.c() error.h()
6	1	compare.c()
13	4	findfrst.c() findfrst.h() findnext.c()
22	3	error.c() error.h() message.h()
51	1	findfrst.c()

Reporting Data on the Web with Metrics

Metrics™ is a reporting utility that uses pre-existing user defined queries and reports in Tracker to gather data for manipulation and publication on a Web page. Metrics allows you to:

- Gather data about issues in your project databases.
- Perform some calculations on those data.
- Present reports and query results on a web site in an automated, scheduled manner.

A Tracker user who creates web pages using Metrics sees the Tracker functionality through the lens of the Metrics Activity Log, shown below, and its attendant configuration dialog boxes.



Many Tracker users have a set of queries they run repeatedly, and after multiple iterations, they might even get a sense of what kind of trends were showing up—the number of submitted

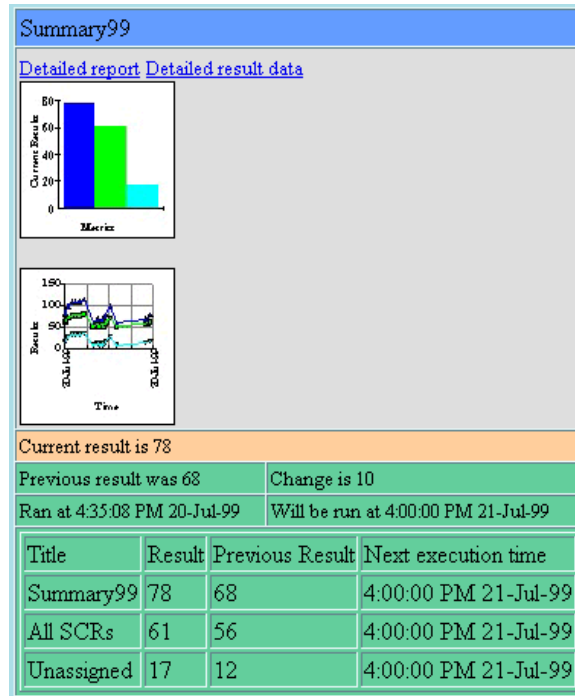
issues might be increasing or the number of fixed issues might be increasing.

Metrics combines querying and reporting with regular-interval execution, like a time-lapse camera, and publishes the results on a web page. In short, it is a way of gathering an extended view over time of your Tracker projects, and continuously publishing that information on your local intranet or across the World Wide Web.

At regular intervals that you define, Metrics runs report or queries against one or more Tracker projects and then presents the resulting values on a web page.

NOTE If you define a Metric to run while your machine is unattended, you should disable Power Saver mode, since that can interfere with the proper execution of Metrics.

When Metrics has been executed several times the trends of Open or Closed issues, or any query you choose, can be presented as a chart (or a report) on a web page.



This web page can then be viewed locally or FTP'd to a location of your choosing.

Metrics can perform some operations on the query results, such as sum the results from two queries, or compute the difference between two query results. You can, for example, divide the number of Urgent issues by the total number of open issues, or add together the number of issues in a set of functional areas. With a little thought, you can use Metrics to capture and present valuable measures of how your project is doing.

Metrics Workflow

The recommended workflow for using Metrics:

Think about what kinds of project statistics you want to measure or already measure manually. You can add, subtract, and divide query results in Metrics.

Use the Metrics button to define a new individual metric. The Metrics Wizard can help you accomplish this.



Define any queries and reports you might need and have a web server set up.



Invoke Metrics from the Start Menu.

Use the Metrics button to define a new individual metric. The Metrics Wizard can help you accomplish this.



Define a metric that captures the statistics you identified earlier. Choose which queries the metric uses, how frequently it runs, and what calculations it performs.



Define at least one web page on which to present the results of the metric's execution.



Start Metrics and let it run queries in the background to gather data.



View the gathered data as a graph, bar chart, or data table on the web page. Publish the URL to your team.

Kinds of Metrics

In addition to modifying and deleting metrics, you can create the following four kinds of metrics.

NOTE There are three dialog boxes named Metric Query. The appropriate Metric Query dialog box is displayed based on the kind of metric you are creating.

keyword:
summary metric

- A Sum of Other Metrics

A Tracker Summary Metric combines the results of two or more metrics in a single metric.

keyword:
report metric

- Tracker Reports

The image of a regular Tracker report.

keyword:
sum or
difference
metric

- A Sum Or Difference Of Multiple Queries

Example: Add up all of the highest-priority defects among several projects, or you might wish to subtract a query titled "Fixed Last Two Weeks" from a query title "Incoming Last Two Weeks".

The list of queries in the Metric Query dialog box shows which queries will be part of the sum or difference. A plus (+) or minus (-) sign at the left of each query's name shows whether or not the query will be added or subtracted from the total.

keyword:
ratio

- A Ratio Of Queries

To define a metric that is a ratio of two queries, Metrics first asks you to choose the query or queries that will make up the numerator portion of the ratio, then another query or queries for the denominator portion of the query. The numerator and denominator can both be either a single query, or a sum or difference of queries.

Example: Divide the number of highest-priority queries by the total number of queries, or divide a query titled “Urgent Last Two Weeks” by a query titled “Incoming Last Two Weeks”.

As you are selecting either the numerator or the denominator, the list of queries shows which queries will be used. Since either the numerator or the denominator can be a sum or difference of queries, a plus (+) or minus (-) sign at the left of each query's name in the Metric Query dialog box shows whether or not the query will be added or subtracted from the total.

Performing Calculations on the Data

The Advanced Field Options and Advanced Weighting Options, shown in the dialog box below, both perform calculations on the data returned by the queries.

Select a Query

Current Project Name:

Current User Id:

Current Server:

Select the Query:

☒ Show advanced field options...

Selecting a query from above results in accumulating record counts. Alternatively, you may accumulate values from up to two numeric or date fields:

Note: for date fields, accumulated results are displayed in days (as opposed to hours, minutes, etc.).

☒ Average the accumulated result

☒ Show advanced weighting options...

Type in a constant value to apply against the above. This value may include negative signs and decimal points. Alternatively, browse to a file that will be updated with the constant value. The file is read when the Metric is executed:

Select which operation to use to apply the constant against the above query count:

☐ Add ☐ Subtract ☒ Multiply ☐ Divide

Advanced Field Options

Normally, Metrics measures quantities relating to entire records—the number of fixed issues, the number of unresolved, and so on—anything that can be measured in a query. The Advanced Field Options allow you to create metrics that measure specific numeric or date fields, as opposed to entire records.

For example, if your customer support team has a numeric field that represents the number of days a support issue remained open, you could use the advanced field options to find out the

average number of days support issues stay open, or the total number of days spent on a given issue.

Show a Second Field

By adding a second numeric or date field, you can create a metric that measures the difference between the two fields.

For example, by subtracting the submit date from the close date, you can measure how long each issue was open.

Not all combinations of fields make sense—it is possible to use the Advanced Field Options to create a query that returns no meaningful output ("Submit Date - ID", for example). You must decide which numeric or date fields will provide meaningful results when subtracted or averaged in this manner.

Advanced Weighting Options

The Advanced Weighting Options allow you to enter a correction factor to apply against the results of the query, to normalize the data being reported.

For example, let's say you wanted to measure the defect level of one project versus a second project. You know that one project has twice the number of lines of code (or twice the number of developers, twice the number of QA staff, and so forth). You could enter a 0.5 in the Advanced Weighting Options in order to apply a correction factor to the results of the query of the larger project.

If you want to enter the correction factor in a separate file, you can use the Browse button to find the filename. You may want to do this if you want to apply a number that is generated by another process. This generated number can be automatically updated and automatically reapplied to the metric if it is saved as the sole contents of an external file.

Publishing Your Metrics

After you have created a metric, you must create a web page to display the results of the metric. To publish your metrics, follow the process below.

NOTE If you have installed Tracker and Metrics on a web server, be aware that Metrics requires write permission into the directory where its .htm and .bin files are stored. The Data Location button on the Metrics Configuration dialog box offers you a way to change the default data location.

- Define a web page for displaying a Metric

OR

Update an existing web page

After you have created a web page, you may wish to remove one of the metrics displayed on it, or you may wish to change the web page's title, its date and time format, and so on.

- Link Metrics to your Tracker web server

At the bottom of the Select Fields dialog box there is a check box labeled Link report to Tracker web server. Checking this box will create a link to your Tracker web server next to each issue listed in the detail report. The table entry for each issue will have a button titled "Details". Clicking this button brings up your Tracker web server.

- Generate an HTML link to the web page

Using the Generate HTML Table of Contents button on the Define Web Pages dialog box, you can create an HTML link to the web pages you are creating. If you copy the link into the source of an existing table of contents page, the link can be easily modified to bring up the new metrics page.

- **Sample Link (without Frames)**

```
<a href = "MetricsSampleFrameRight.htm">
MyFirstWebPage</a><br>
```

- **Sample Link (with Frames)**

```
<a href=
"MetricsSampleFrameRight.htm"target="FrameRight">
MyFirstWebPage</a><br>
```

Link Structure

The `<a` is part of the opening tag for an HTML link.

The `href = "MetricsSampleFrameRight.htm">` is a hypertext reference and the end of the anchor tag.

--"MetricsSampleFrameRight.htm" is the file that will open when you click the hypertext reference

"MyFirstWebPage" is the text of the link; the "click me" string.

The `` is the closing tag for the HTML link.

The `
` signals that a line break should occur.

You can use the Copy button to edit the `href = "..."` statement to reflect the path to your metrics web pages. You can tell where your metrics web pages are being created by clicking the ViewSamplePage button and observing the pathname that appears in your browser. (If you have saved your web pages to a different location, you will have to find that location yourself.)

If you are using frame syntax, edit the `target="FrameRight"` statement so that the name of the frame where you wish the metric web page to appear replaces the "FrameRight" string.

- **Use File Transfer Protocol (FTP)**

Use the FTP button on the Define Web Page Properties dialog box to have the web page containing your metric results automatically copied to another location. You must know the login information and destination directory for the receiving FTP location, or server.

keyword:
running Metrics

After the metrics and web pages have been defined, it is time to run Metrics and let the data from the queries come in so you can view the results.

Metrics and Queries Containing Change Conditions

You can use Metrics in combination with queries based on change history (see [“Change Conditions” on page 128](#)) to gather and present useful statistics on your project. Since change history queries allow you to query based on changes using relative dates, you can create Metrics that gather statistics such as the number of:

- issues where the state changed from <anything> to Urgent in the month of June
- issues where the state changed from Fixed to <anything> since the beginning of the project
- issues that have been submitted in the last <N> days
- urgent issues submitted in the last <N> days as a ratio of the total number of issues submitted in the last <N> days

In the first three examples, you would create a query using the Change Condition option accessible from the Add button on the Query Properties dialog box, and then create a Query Count metric that was based on that query.

For the last example, you would have to first create two queries, one for the number of urgent issues submitted in the last <N> days, and another for the total number of issues submitted in the last <N> days. Then you would create a Query Count metric using the Metric Wizard, and you would select Sum of Queries/ Another Sum of Queries for the type.

9 Using Tracker's Source Control Integration

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About Tracker's Source Control Integration

Tracker's source control integration allows you to:

- Associate issues with files under source control in Version Manager and Microsoft Visual SourceSafe
- Perform basic source control operations, such as check-in and checkout, from within Tracker

Benefits of Integrating Tracker with Source Control

Using integrated products benefits your development and maintenance efforts in several ways:

- "Fixed" issues often need to be reopened. You can point at an issue and instantly zero in on code changes that are part of previous investigations.
- You can pinpoint specific modules that are candidates for re-engineering.
- You can use the traceability between source-code changes and issues in complying with internally or externally imposed audits of the change process.
- "Fixed" modules often introduce new bugs. You can point at a broken code module and instantly identify recent issue activity.
- One-step change documentation encourages use, saves developer time, and reduces errors. You don't need to manually link code changes with issue records; Tracker does it for you.

Terminology and Features: Version Manager Versus Visual SourceSafe

The Tracker integration to source control supports both Merant Version Manager and Microsoft Visual SourceSafe. For the most part, the integrations are the same, but there are several differences in terminology and available features between the two source control systems. The features available through the Tracker integration also differ somewhat from those available through the native source-control GUIs. This section notes those differences.

Differences in Terminology

Version Manager	Visual SourceSafe
Project Database	Database
Revision Number	Version Number
Version Label Each revision can have multiple version labels.	Version Label Each version can have one version label.

Differences in Features

The following table indicates how the source control features available through Tracker differ from those available through the source control GUIs. It also indicates how the integration to Version Manager differs from the integration to Visual SourceSafe.

Feature	VM & Tracker	VM GUI	VSS & Tracker	VSS GUI
Branching	Yes	Yes	No	Yes

Feature	VM & Tracker	VM GUI	VSS & Tracker	VSS GUI
Check out a previous revision/version	Yes	Yes	No	Yes
Promotion groups	No	Yes	n/a	n/a

NOTE Workfiles will be checked out to the default workfile location as defined in the source control system, unless you specify an alternate location. Version Manager workspace settings are ignored.

Switching Between Version Manager and Visual SourceSafe

The Tracker source control integration uses the Component Object Model (COM) interface to connect to Version Manager and Visual SourceSafe. Since the COM interface allows only one provider to be in effect at a time, you must change COM providers in order to switch the source control provider you are using with Tracker.

NOTE Unless you have switched COM providers as outlined below, the most recent COM provider installed will be in effect.

Switching from Version Manager to Visual SourceSafe

To switch from VM to VSS:

- 1 Close Tracker and any other programs that utilize the COM interface.
- 2 Open a command prompt (DOS window).

- 3 Switch to the following directory:

```
VSS_Install_Directory\Common\VSS\win32
```

- 4 Enter the following command and press ENTER:

```
regsvr32 ssapi.dll
```

Switching from Visual SourceSafe to Version Manager

To switch from VSS to VM:

- 1 Close Tracker and any other programs that utilize the COM interface.
- 2 Open a command prompt (DOS window).
- 3 Switch to the following directory:

```
VM_Install_Directory\vm\devint\bin
```

- 4 Enter the following command and press ENTER:

```
regsvr32 ifc_com.dll
```

About Issue/Module Associations

An *association* is a relationship between an issue and a source-code module. This link enables Tracker and your source control system to exchange and store information.

You can use Tracker to create module associations between:

- A single issue and a single source module.
- A single issue and multiple source modules.
- Multiple issues and a single source module.

- Multiple issues and multiple source modules.

You can create module associations in two ways, automatically and manually. Which one you use will vary depending on the workflow used to submit and resolve the issues. See the following sections for several example scenarios.

Making Associations Automatically

Tracker enables you to check files in to and out of source control databases from within Tracker. When you check out source modules for editing, Tracker automatically creates an association between the source modules and any issues you selected. When you check in modules after modification, Tracker adds the new revision numbers to the associations.

The following illustrates several use scenarios:

- **Single Issue/Multiple Modules:** The relationship of a single issue to multiple modules often occurs during the maintenance phase of a project. In this model, a single issue requires modifications to multiple source code modules.

Scenario

For example, a developer is working on an issue that requests a browse button for selecting files in a graphical user interface program. The developer must modify the source code modules for each dialog box that allows users to select files.

- **Multiple Issues/Single Module:** The relationship of multiple issues to a single module often occurs during the later stages of development and after initial integration. In this model, multiple issues require modifications to the same source code module.

Scenario

For example, a developer integrates a brand new code module that contains several defects. The developer then receives notification of multiple issues that relate to this

module. Once the code is fixed, the developer needs an easy way to resolve all the issues that are related to this module.

Process

To create the association, select one or more open issues. Then use the Tracker Check Out dialog box to check out the relevant source modules from source control. For more information, see [“Checking Out Source Modules” on page 174](#).

After you finish modifying the modules, select the relevant issues and use the Tracker Check In dialog box to check the modules back in to source control. During check-in, Tracker builds an association between the issues and the new revisions. For more information, see [“Checking In Source Modules” on page 180](#).

Making Associations Manually

You can also create associations between source modules and issues without checking files in or out. If a module is related to multiple issues and you do not select all of the issues when you check out the source modules, you can later make the association manually.

Scenario

For example, a developer integrates a new module with some highly visible defects into an early build of an application. As the first issues are submitted, the developer checks out the module, associating it with all current issues, and resolves many of the problems. Before the next build of the program, many more issues are submitted for problems he has already fixed. The developer needs a way to create associations between the newly submitted issues and the files he has already fixed and checked in.

Process

To associate modules and issues manually, use Tracker’s Add Module Associations from source control dialog box to create associations without checking files in or out of source control.

For more information, see [“Adding Module Associations” on page 185](#).

Checking Out Source Modules

This procedure checks out revisions from source control projects. Tracker associates the modules you check out with the issues you select. Change descriptions are stored with the associated Tracker issues and in your source control database (Version Manager does not store descriptions on checkout).

NOTE Checkout will fail for any modules that have writable workfiles, and the Results dialog will display the message, "source control operation failed".

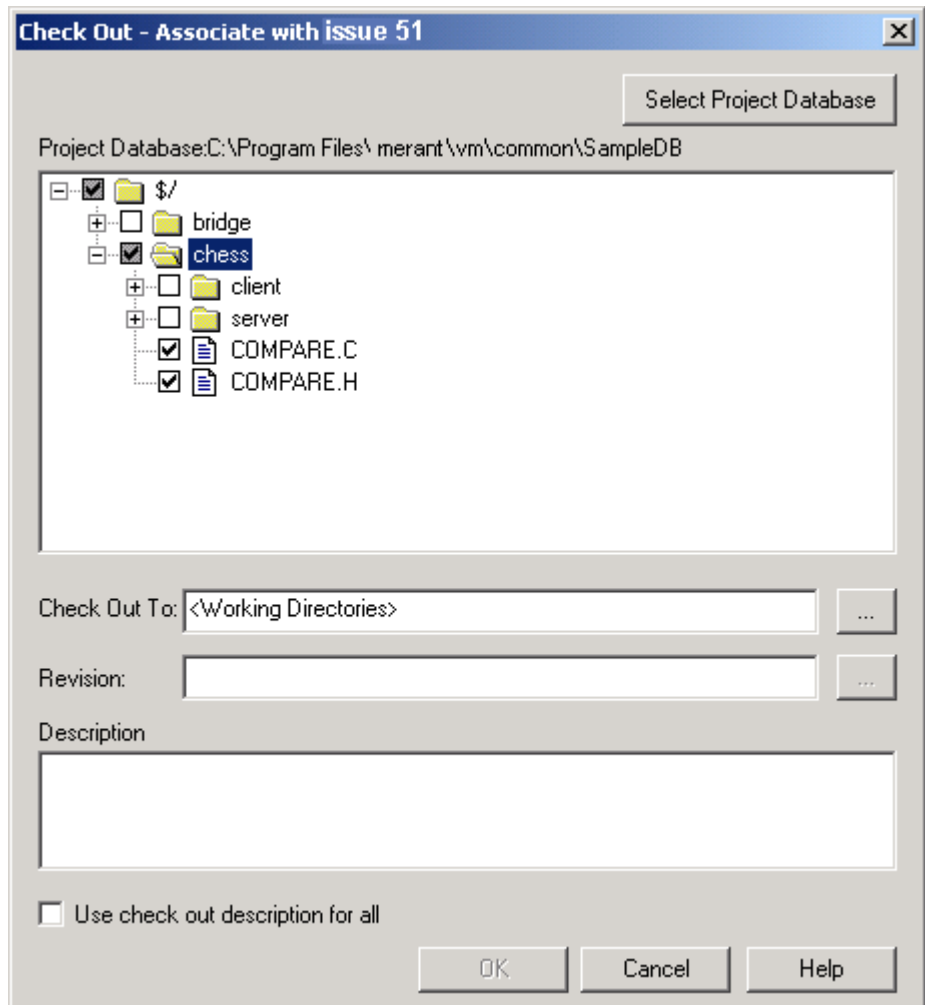
NOTE Tracker's source control integration does not allow a single user to check out multiple revisions of a file (**MultiLock user**). If you check out multiple revisions of a file directly from Version Manager, you cannot check in or undo checkout of those revisions from Tracker.

The integration does allow multiple users to each check out a different revision of the same file (**MultiLock revision**) if this directive has been set in Version Manager. For more information on the MultiLock directive, see the *Merant Version Manager Administrator's Guide*.

To check out source modules:

- 1 Select the issues you wish to associate with source control modules.

- 2 Select Actions | Source Control | Check Out Module. The Check Out dialog box appears.



NOTE If you have not previously connected to a source control project, the Select Project Database dialog box appears first. See Step 3.

3 If the desired source control database is not open, click the **Select Project Database** button. The Select Project Database dialog box appears.

a Do one of the following:

- Select a source control project database from the **Available Databases** list.
- To open a project database located on your local file system or the network, click the **Browse** button to browse to it using the Open dialog box.
- To open a project database located on a Version Manager File Server, click the **File Servers** button. The Select File Server dialog box appears.

To open a project database located on a listed Version Manager File Server, select it from the **Project Databases** list and click **OK**.




To add a Version Manager File Server to the list, double-click an empty cell in the **File Server** list and type the name of the system that hosts the file server. Once you press the ENTER key, the entry will be auto-completed (`http://SystemName:8080/merantfs/FileServer`) and tested. To specify an https server or a non-standard port, double-click on the auto-completed entry, edit it appropriately, and press the ENTER key.

b Enter a user name and password, if required.

c Click the **Open** button.

4 From the **Project Database** tree, select the source control projects and files to check out.

This icon . . . Means the file is . . .

- | | |
|---|------------------------------|
|  | Not checked out. |
|  | Checked out by you. |
|  | Checked out by someone else. |

- 5 To override the default working directory associated with the source control files, enter the path to an alternate location in the **Check Out To** field or click the browse button to browse to one. This directory will serve as the root of the workfile directory structure for this check-out operation.

NOTE Version Manager workspace settings will be ignored.

- 6 (Version Manager projects only) Enter a specific revision or version label to check out in the **Revision** field or click the browse button to browse for one (browse is disabled if multiple files are selected). By default, the latest revision will be acted on.

NOTE If you check out a previous revision, a branch will be created when you check in the module.

- 7 Enter a description in the **Description** field.

NOTE Version Manager does not record a check-out description, but Tracker and Visual SourceSafe do.

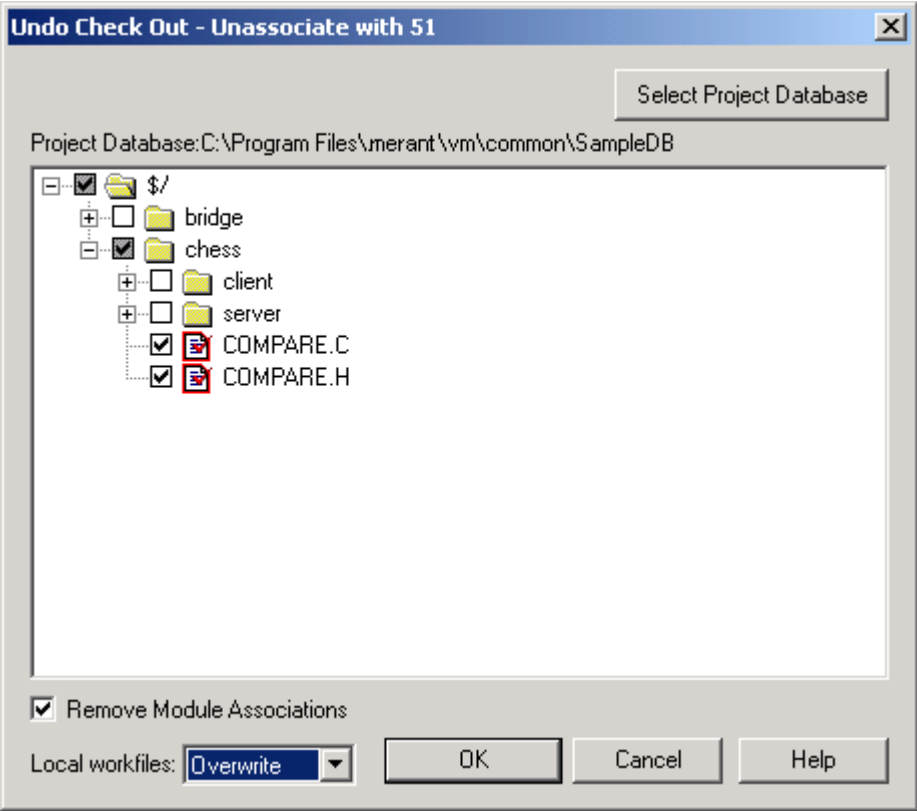
- 8 Select the **Use check out description for all** check box to use the same description for each workfile. Otherwise, you will be prompted for a description for each file.
- 9 Click **OK**.
- 10 The Progress dialog box displays the results of the operation. To dismiss it, click the **Close** button.

Undoing Checkout of Source Modules

This procedure undoes module checkouts and optionally removes module associations.

To undo a checkout on source modules:

- 1 Select the issues associated with the source control modules for which you wish to undo checkout.
- 2 Select Actions | Source Control | Undo Check Out Module. The Undo Check Out dialog box appears.



NOTE If you have not previously connected to a source control project, the Select Project Database dialog box appears first. See Step 3.

3 If the desired source control database is not open, click the **Select Project Database** button. The Select Project Database dialog box appears.

a Do one of the following:

- Select a source control project database from the **Available Databases** list.
- To open a project database located on your local file system or the network, click the **Browse** button to browse to it using the Open dialog box.
- To open a project database located on a Version Manager File Server, click the **File Servers** button. The Select File Server dialog box appears.

To open a project database located on a listed Version Manager File Server, select it from the **Project Databases** list and click **OK**.

To add a Version Manager File Server to the list, double-click an empty cell in the **File Server** list and type the name of the system that hosts the file server. Once you press the ENTER key, the entry will be auto-completed (`http://SystemName:8080/merantfs/FileServer`) and tested. To specify an https server or a non-standard port, double-click on the auto-completed entry, edit it appropriately, and press the ENTER key.

b Enter a user name and password, if required.

c Click the **Open** button.

- 4 From the **Project Database** tree, select the source control projects and files to act on.

This icon . . . Means the file is . . .



Not checked out.



Checked out by you.



Checked out by someone else.

- 5 To remove the associations between the selected issues and modules, select the **Remove Module Associations** check box.
- 6 Make a selection from the **Local Workfiles** list to determine what to do with the workfiles that were created during checkout:
 - **Overwrite:** Overwrites the workfiles with a read-only copy of the latest revision. This is the default.
 - **Delete:** Deletes the workfiles.
 - **Leave:** Leaves the workfiles as they are.
- 7 Click **OK**.
- 8 The Progress dialog box displays the results of the operation. To dismiss it, click the **Close** button.

Checking In Source Modules

This procedure checks modules back in to source control after modification. Tracker associates the modules you check in with the issues you select. Change descriptions are stored with the associated Tracker issue records and in your source control database.

To check in source modules:

- 1 Select the issues you wish to associate with source control modules.
- 2 Select Actions | Source Control | Check In Module. The Check In dialog box appears.

NOTE If you have not previously connected to a source control project, the Select Project Database dialog box appears first. See Step 3.

- 3 If the desired source control database is not open, click the **Select Project Database** button. The Select Project Database dialog box appears.

- a Do one of the following:




- Select a source control project database from the **Available Databases** list.
- To open a project database located on your local file system or the network, click the **Browse** button to browse to it using the Open dialog box.
- To open a project database located on a Version Manager File Server, click the **File Servers** button. The Select File Server dialog box appears.

To open a project database located on a listed Version Manager File Server, select it from the **Project Databases** list and click **OK**.

To add a Version Manager File Server to the list, double-click an empty cell in the **File Server** list and type the name of the system that hosts the file server. Once you press the ENTER key, the entry will be auto-completed (`http://SystemName:8080/merantfs/FileServer`) and tested. To specify an https server or a non-standard port, double-click on the auto-completed entry, edit it appropriately, and press the ENTER key.

- b** Enter a user name and password, if required.
 - c** Click the **Open** button.
- 4** From the **Project Database** tree, select the source control projects and files to check in.

This icon . . . Means the file is . . .

	Not checked out.
	Checked out by you.
	Checked out by someone else.

- 5** To override the working directory the files were checked out to, enter the path to an alternate location in the **Check In From** field or click the browse button to browse to one. This directory will serve as the root of the workfile directory structure for this check-in operation.
- 6** To specify a version label for the new revision, enter a version label in the **Label** field. Or Tracker can automatically create a label as defined by the Tracker Administrator. For more information, see the *Tracker Administrator’s Guide*.

NOTE If you specify a label that is already assigned to a revision of the file, the label will be reassigned to the revision you are checking in.

- 7** Enter a description in the **Description** field. Tracker will automatically add certain source control information and text to the description, as defined by the Tracker Administrator. For more information, see the *Tracker Administrator’s Guide*.
- 8** Select the **Use change description for all** check box to use the same description for each workfile. Otherwise, you will be prompted for a description for each file.
- 9** Click **OK**.

- 10 The Progress dialog box displays the results of the operation. To dismiss it, click the **Close** button.

Adding Workfiles to Source Control

This procedure adds workfiles to source control and associates them with the issues you select.

To add files to source control:

- 1 Select the issues you wish to associate with workfiles.
- 2 Select Actions | Source Control | Add Module. The Add Module dialog box appears.

NOTE If you have not previously connected to a source control project, the Select Project Database dialog box appears first. See Step 4; then return to this step.

- 3 In the **Add Workfiles From** field, enter the path and name of the workfiles you want to add to source control or click the browse button to browse to them.

You can specify files using wildcards, such as *.java. To separate multiple entries, use semicolons (;).

- 4 If the desired source control database is not open, click the **Select Project Database** button. The Select Project Database dialog box appears.
 - a Do one of the following:
 - Select a source control project database from the **Available Databases** list.
 - To open a project database located on your local file system or the network, click the **Browse** button to browse to it using the Open dialog box.

- To open a project database located on a Version Manager File Server, click the **File Servers** button. The Select File Server dialog box appears.

To open a project database located on a listed Version Manager File Server, select it from the **Project Databases** list and click **OK**.

To add a Version Manager File Server to the list, double-click an empty cell in the **File Server** list and type the name of the system that hosts the file server. Once you press the ENTER key, the entry will be auto-completed (`http://SystemName:8080/merantfs/FileServer`) and tested. To specify an https server or a non-standard port, double-click on the auto-completed entry, edit it appropriately, and press the ENTER key.

- b Enter a user name and password, if required.
 - c Click the **Open** button.
- 5 From the **Select Parent Project** tree, select the source control project to check the files in to.
 - 6 Enter a description in the **Description** field. Tracker will automatically add certain source control information and text to the description, as defined by the Tracker Administrator. For more information, see the *Tracker Administrator's Guide*.
 - 7 Select the **Use description for all** check box to use the same description for each workfile. Otherwise, you will be prompted for a description for each file.
 - 8 Click **OK**.
 - 9 The Progress dialog box displays the results of the operation. To dismiss it, click the **Close** button.

Managing Issue/Module Associations

Adding Module Associations

You can create a relationship between issues and source modules without having to check files in or out. You may want to do this when:

- A module is already checked in but you want to indicate its association to an issue.
- You used your source control application itself to check modules in and out of the source control project.
- You want to make sure association information is noted in an existing Tracker database.

There are two ways to add a module association without checking files in or out. You can select module files from your:

- Source control system
- File system

Adding Associations with Source Control

To add module associations:

- 1 Select the issues you wish to associate with source control modules.
- 2 Select Actions | Source Control | Add Module Association. The Add Module Association from Version Control dialog box appears.

NOTE If you have not previously connected to a source control project, the Select Project Database dialog box appears first. See Step 3.

3 If the desired source control database is not open, click the **Select Project Database** button. The Select Project Database dialog box appears.

a Do one of the following:

- Select a source control project database from the **Available Databases** list.
- To open a project database located on your local file system or the network, click the **Browse** button to browse to it using the Open dialog box.
- To open a project database located on a Version Manager File Server, click the **File Servers** button. The Select File Server dialog box appears.

To open a project database located on a listed Version Manager File Server, select it from the **Project Databases** list and click **OK**.

To add a Version Manager File Server to the list, double-click an empty cell in the **File Server** list and type the name of the system that hosts the file server. Once you press the ENTER key, the entry will be auto-completed (`http://SystemName:8080/merantfs/FileServer`) and tested. To specify an https server or a non-standard port, double-click on the auto-completed entry, edit it appropriately, and press the ENTER key.

b Enter a user name and password, if required.

c Click the **Open** button.

- 4 From the **Project Database** tree, select the source control projects and files to associate.

This icon . . . Means the file is . . .



Not checked out.



Checked out by you.



Checked out by someone else.

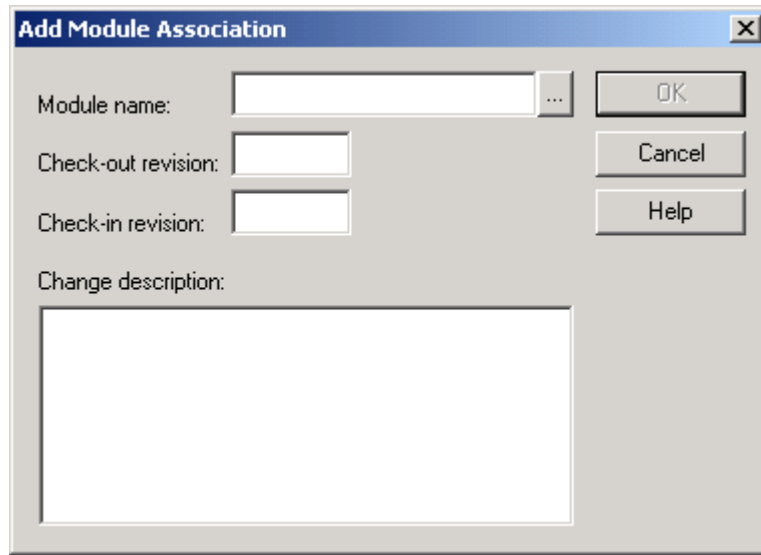
- 5 (Optional) To specify the revision that was checked in for this issue, specify a revision number or version label in the **Check-in revision** field or click the browse button to browse for one (browse is disabled if multiple files are selected).
- 6 (Optional) To specify the revision that was checked out for this issue, specify a revision number or version label in the **Check-out revision** field or click the browse button to browse for one (browse is disabled if multiple files are selected).
- 7 Enter a description in the **Module Association Description** field. Tracker will automatically add certain source control information and text to the description, as defined by the Tracker Administrator. For more information, see the *Tracker Administrator's Guide*.
- 8 Select the **Use description for all** check box to use the same description for each workfile. Otherwise, you will be prompted for a description for each file.
- 9 Click **OK**.

Adding Associations with the File System

To add module associations:

- 1 Select the issues you wish to associate with system files.

- 2 Select Actions | Add Module Association. The Add Module Association dialog box appears.



- 3 In the **Module name** field, enter the path and name of the workfiles you want to associate with issues or click the browse button to browse to them.

You can specify files using wildcards, such as `*.java`. To separate multiple entries, use semicolons (;).

- 4 (Optional) To specify the revision that was checked out for this issue, specify a revision number or version label in the **Check-out revision** field.
- 5 (Optional) To specify the revision that was checked in for this issue, specify a revision number or version label in the **Check-in revision** field.
- 6 Enter a description in the **Change description** field. This description is stored in Tracker.
- 7 Click **OK**.

Modifying Issue/Module Associations

This procedure modifies the association information stored in Tracker.

To modify a module association:

- 1 Select the issues with the associations you wish to modify.
- 2 Select Action | Update. The Update dialog box appears.
- 3 Select the Module Associations tab.
- 4 Select the module you want to modify from the **Associated modules** list.
- 5 Click the **Modify** button. The Modify Module Association dialog box appears.
- 6 Do any of the following:
 - Enter a different module to associate to in the **Module name** field or click the browse button to browse to one.
 - Enter a revision number in the **Check-out revision** field.
 - Enter a revision number in the **Check-in revision** field.
 - Modify the change description stored in Tracker.

NOTE You cannot modify the change description stored in the source control project from this dialog.

- 7 Click **OK**.

Deleting Module Associations

To delete a module association:

- 1 Select the issues with the associations you wish to delete.

- 2 Select Action | Update. The Update dialog box appears.
- 3 Select the Module Associations tab.
- 4 Select the module association you want to delete from the **Associated modules** list.
- 5 Click the **Delete** button. A prompt appears asking you to confirm the deletion.
- 6 Click **Yes**.

Viewing Module Association Information

In Tracker, there are three ways to view module association information:

- The Details pane via a style sheet
- A module report
- The Module Associations tab of the Update dialog box

From your source control provider, you can view the module association information that was included in the module change descriptions and version labels. See the *Tracker Administrator's Guide* for information on setting up change description and version label templates.

Module Information in the Details Pane

To view module association information in the Details pane, you can define your own style sheets or use the predefined style sheets. The examples below are from the Extended style sheet, which is one of the predefined system style sheets.

You can display:

- A list of the modules associated with the current issue:

Modules: findfrst.h
findnext.h

- A list of the module revisions associated with the current issue and who checked them in and out:

Revisions: findfrst.h(dev1, Check out 1.0, Check in 1.1)
findnext.h(dev1, Check out 1.0, Check in 1.1)
findfrst.h(dev1)
findnext.h(dev1)

- A change history of the current issue, which includes the date and time of each source control operation, who performed it, and what module was acted on:

Change History:

10/23/2002 9:15:58 AM(dev1)	Checked Out Module 'FINDNEXT.H'
10/23/2002 9:15:11 AM(dev1)	Checked Out Module 'FINDFRST.H'
10/23/2002 9:04:21 AM(dev1)	Added Module Association 'FINDNEXT.H'
10/23/2002 9:04:01 AM(dev1)	Added Module Association 'FINDFRST.H'
10/21/2002 4:48:52 PM(dev1)	Checked In Module 'FINDNEXT.H'
10/21/2002 4:48:48 PM(dev1)	Checked In Module 'FINDFRST.H'

For more information on style sheets, see [Chapter 4, "Seeing Your Data Your Way,"](#) on page 73.

Module Information in Reports

To view module association information in a report, select Report | Modules. As with other reports, you can create a customized module report. The examples below are from the default module report.

You can organize reports by module or by issue:

- By module, the report lists each module that has an association with an issue, the number of issues associated with it, and the ID of each issue associated with it:

Thursday, October 17, 2002		
Modules	# Issues	Issues
findfrst.h	3	34 40 42
findnext.h	3	34 40 42

- By issue, the report lists each issue that has an association with a module, the number of associated modules, and the name and revision of each associated module:

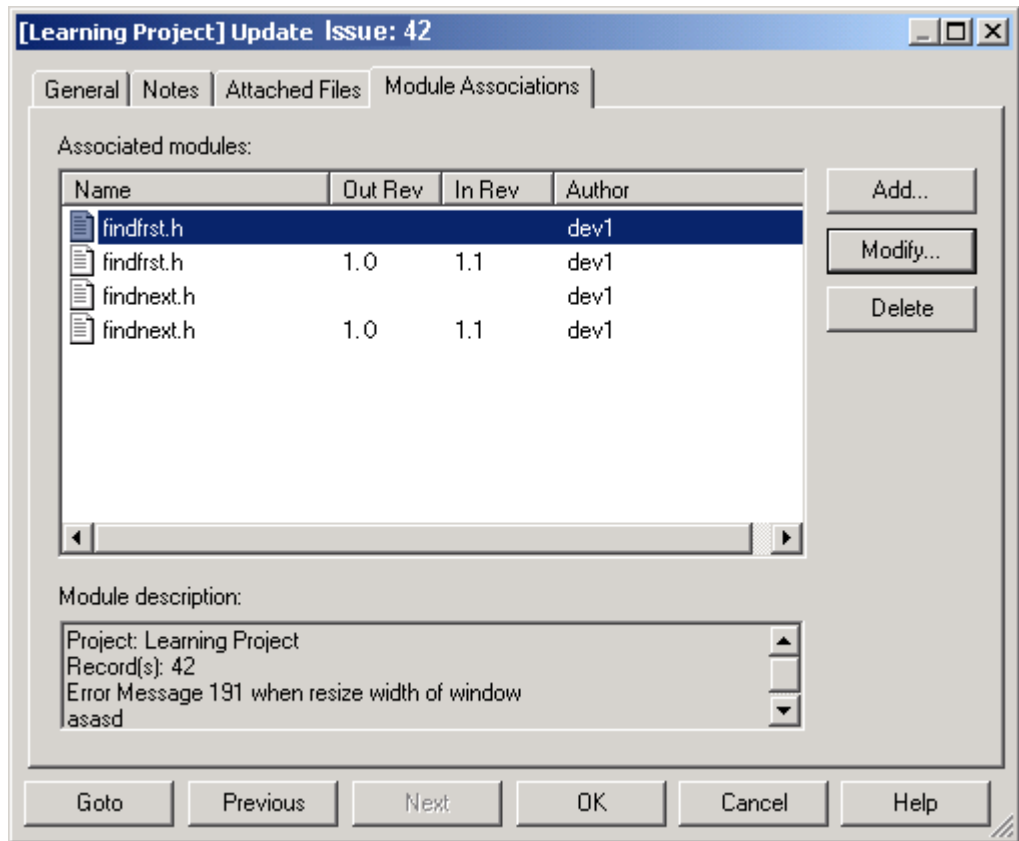
Thursday, October 17, 2002		
Issues	# Modules	Modules
34	2	findfrst.h(1.0) findnext.h(1.0)
40	2	findfrst.h(1.1) findnext.h(1.1)
42	2	findfrst.h(1.1) findnext.h(1.1)

For more information on reports, see [Chapter 8, “Reporting on Progress,” on page 133](#).

Module Information in the Update Dialog Box

To view module association information in the Update dialog box, select Actions | Update | Module Associations. However, do

consider that other users will be unable to modify the issue while you have it open in the Update dialog box.



The Module Associations tab displays the following information:

- The modules associated with the current issue
- The revisions associated with the current issue at checkout and check-in
- The ID of the user who performed each association
- The change description of each associated module revision

You can also add, delete, and modify module associations from this dialog. For more information, see [“Managing Issue/Module Associations” on page 185](#).

Using the Learning Projects with the Version Manager Sample Project Database

The Learning Projects include sample workfiles, and the Version Manager sample project database contains sample source control projects so that users can experiment with the Tracker/Version Manager integration without having to use real data. Follow the steps below to experiment with the integration.

NOTE If Visual SourceSafe is your source control provider, create a database for experimentation and use it in place of the Version Manager sample project database mentioned in the following procedures.

Part 1: Add a Workfile to Source Control and Associate It with an Issue

Scenario An issue requesting the implementation of a new feature has been assigned to you. In resolving the issue, you created a new source file. You must check the new file in to your source control database and associate it with the issue that initiated the work.

Procedure **To add a workfile and associate it with an issue:**

- 1 Log in to the Learning Project as the user **dev1**. For instructions, see [“Logging In for the First Time” on page 57](#).
- 2 Select an issue in the In Tray or Query window.

- 3 Select Actions | Source Control | Add Module.
- 4 Click the **Select Project Database** button. The Select Project Database dialog box appears.
- 5 Click the **Browse** button, and browse to the Version Manager sample project database:
Install_Directory\Merant\vm\common\SampleDB\pvcsroot.ser.
- 6 Enter the user name **ken** in the **Username** field.
- 7 Click the **Open** button.

NOTE The integration opens to the last database you used and displays up to five databases on the Select Project Database dialog box, so you will not have to select and open a source control database every time you use the integration.

- 8 Click the browse button next to the **Add Workfiles From** field and select a file in the
Install_Directory\Merant\Tracker\db\WORKFILES directory.
- 9 From the **Select Parent Project** list, select a source control project in which to place the workfile you selected in Step 8.
- 10 Enter a description of the workfile in the **Description** field.
- 11 Click **OK**.

You can view the association you just created from the Module Associations tab of the Update dialog box (Actions | Update).

Part 2: Check Out a Workfile, Edit It, and Associate It with an Issue

Scenario

A bug was found in the new feature you created in Part 1, and the issue requesting that it be fixed has been assigned to you. You must:

- Check out the source file from source control.
- Associate the source file with the new issue.
- Edit the source file.
- Check the source file back in to source control.

Procedure

To edit a workfile and associate it with an issue:

- 1 Select an issue in the In Tray or Query window.
- 2 Select Actions | Source Control | Check Out Module. The Check Out dialog box appears.
- 3 Select the file you added to source control in Part 1.
- 4 Click **OK**.

TIP You can view the association you just created from the Module Associations tab of the Update dialog box (Actions | Update).

- 5 You can now edit the workfile and save your changes.
- 6 Select the issue in the In Tray or Query window.
- 7 Select Actions | Source Control | Check In Module. The Check In dialog box appears.
- 8 Select the file in the project tree.
- 9 Enter a description of the workfile in the **Description** field.
- 10 Click **OK**.

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